

School Management



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HOW TO ACHIEVE THE KIND OF EDUCATIONAL PROGRAMS THAT ARE NEEDED IN RURAL AREAS

By FRANCIS S. CHASE
Guest Educational Commentator

THE biggest drawback to achievement of the needed educational program in America today is the failure of our people to perceive what is needed and how to get it. This is particularly true of rural people. Rural people are not easily scared or stampeded; they are not readily moved by crisis psychology; but they themselves will move when they have a chance to study the facts and to make up their own minds on the basis of full information and adequate discussion.

An improved quality of education will not come simply from wishing; it will not come through exhortation or through attacks upon the teaching profession; it will not come through the discovery of some new method or new device which will provide an easy road to learning; and it will not come simply through increasing the costs of education. Yet a tremendously improved brand of education is within our reach.

We can hope to have, throughout the country, an educational program of the desired scope and quality only when:

1. There is general understanding of what we can accomplish through education and of how our desired educational goals may be attained.

2. School systems are so organized as to be able to provide the facilities and the staff essential to the needed program.

3. Federal, state, and local resources are combined in a finance program that will equalize the burden of school costs and assure support of an appropriate program of education to every boy and girl regardless of economic status, racial background, or place of residence.

4. Superintendencies and principalships in all of our school systems can be filled with educational leaders of vision and ability.

5. Teaching positions in rural schools are made attractive to men and women of character, competence, and with appreciation of the values of democratic living.

6. State educational agencies map out the broad outlines of wise state policies for education and provide local school systems with needed facts, consultative services, and stimulation to improvement of schools.



Mr. Chase is director of the Rural Editorial Service and lecturer on educational administration, University of Chicago. This editorial is adapted from his talk at the National Conference of County and Rural Area Superintendents.

7. Education is related to community needs and resources, and citizens take an intelligent part in educational planning.

It is perfectly clear that we shall get from where we are to where we want to be only when citizens, especially the men and women on the farms and in the villages, understand why those things are desirable and how they can be attained.

Superintendents of schools are in key positions to set in motion the necessary forces. This is particularly true in rural areas where the need is greatest. For this reason, the suggestions that follow are beamed at rural districts, although largely applicable everywhere.

Suppose that every county superintendent were to begin a series of conferences with key teachers and citizens. Suppose that out of these exploratory conferences, plans should develop for careful consideration by the people in every rural community of what kind of schools they want. Suppose that during these discussions rural people were helped by seeing such provocative films as "School House in the Red" produced by the Kellogg Foundation, and the recently released March of Time "Fight for Better Schools," which is now also available in a 16-mm. edition.

Suppose further that they had copies of Bell and Howell's handbook for citizens, "Schools Are What We Make Them," of the National Commission on School District Reorganization's "A Key to Better Education," and of numerous other brochures and materials which will help the people visualize what good schools are like and how they may be obtained. Suppose these citizens' groups had access to the materials and services now being made available through the National Citizens Commission for the Public Schools—stories of how citizens have raised the quality of education in community after community.

And suppose finally, that throughout these discussions citizens had the benefit of guidance from well-informed teachers who had been studying the facts and the issues involved through faculty workshops and otherwise; and that in every county there were in the background an alert superintendent.

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Booklet urged voters to increase school assessment. Newspapers announced the news

A GREAT FORCE FOR BETTER SCHOOLS

Joint efforts of Citizens Committee and school staff upgrade educational facilities in Battle Creek

By VIRGIL ROGERS

Superintendent of Schools, Battle Creek, Michigan

THE depression was still on in 1944 in the public schools of Battle Creek, Michigan. Salaries were still low from the drastic cuts of the 1930's. School support, under a restrictive constitutional tax limitation law enacted during the panic period was wholly inadequate. Buildings were in a state of disrepair after being woefully neglected over a long span of years.

Classrooms in certain buildings had been forgotten by the maintenance department and had received not one redecoration job for 15 years. Instructional supplies were almost nonexistent in some categories. Teachers were buying these out of their own money in various schools. In others, children working with the principal had organized plans for selling merchandise as street peddlers to raise money for supplies. The PTA had the difficult job of helping to buy such classroom "luxuries" as movie projectors, radios, and record players.

About this time the board of education authorized a comprehensive school survey which was financed through the generosity of the W. K. Kellogg Foundation. One of the major recommendations was for bringing the citizens of the city into closer contact with their schools through citizen-school organizations. Following the survey, the board of education reorganized the school administration, placing this responsibility and authority upon the recently



Citizens Planning Committee meets

work with the faculty on the schools' problems. This committee was formed by asking representatives of about 20 organizations in the community to serve along with a number of other citizens who were recognized for their civic leadership.

When the Citizens Committee on School Problems came together to hear the superintendent of schools present a bill of particulars as to needs, it was suggested among other things that it subdivide into four committees: one to study the needs of the secondary schools; another to study the needs of the elementary school plants; a third to consider school playground needs; and a fourth to study the needs of the city library (the library being a part of the school system), the city museum, the school farm, and the school camp.

During the following months, committees of laymen accompanied by staff members climbed stairs, peered into dark basements, investigated antiquated plumbing in school rest rooms, and

appointed superintendent. Immediately after the reorganization, a series of conferences was held involving the PTA, the executive committee of the Teachers Association, and other groups to consider ways and means of improving school conditions.

After a year of study, the superintendent asked authority from the board of education to designate a citizens committee to

studied the safety hazards in school buildings. Unsafe, non-fireproof stairways were condemned along with basement classrooms and attic rooms which had been brought into use because of overcrowding. Lighting was made a problem for special study, and on a cloudy day one committee observed demonstrations to show that teachers arranged for practically no reading periods by students in certain rooms on such days.

Run-down and neglected play areas, equipped with worn-out or broken playground equipment, horrified some of the citizen inspectors. Teachers complained to the committeemen of the multiplicity of shortages and pointed out what a little additional money would do for their schools.

In due course a series of meetings was held with the entire Citizens Committee present, some of these around dining tables following a complimentary meal served by the schools. Laboriously each subcommittee prepared its report with recommendations to the general committee. Pictures and charts were presented to help visualize the problem. Many evenings and some half-days were devoted to the time-consuming, drab, but very important business of arriving at a consensus as to the legitimate educational needs of the schools.

A subcommittee on sources of school revenue spent additional days and scores of hours studying the tax structure of the community, the schools' operating budget, the allocations which could be anticipated from state funds; making comparative analyses of comparable city school systems, tax rates per pupil, expenditure, and plans for educational improvement in the communities studied.

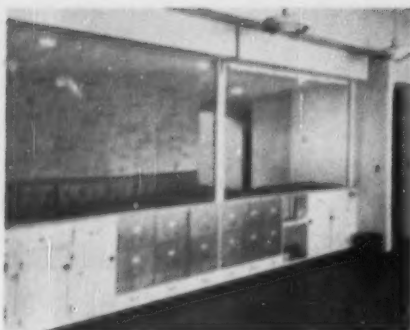
Then a compromise was reached and a program unanimously approved by the general group. It was presented to the board of education for consideration. It should be mentioned here that board members were invited to the committee meetings, and several of them maintained an active interest in the progress of the studies.

The final action of the original committee came with an approved statement, part of which read as follows:

We must start immediately to put our financial house in order and on a firm foundation by obtaining more funds from local taxes.

Further, we resolve that the Educational Planning Committee urge a closer cooperation among leaders of business, industry, labor, and education to provide better educational facilities for the 9,000 school children of this community.

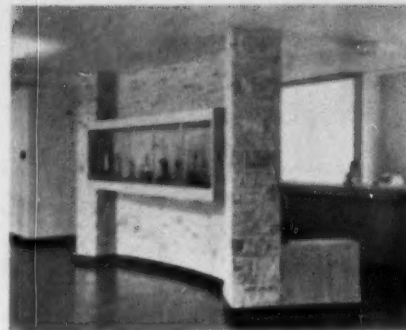
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Office counter showing built-in files



Comfortable seats for those who tarry



Close-up of trophy case in the lobby

MAKE NO LITTLE PLANS!

Though Overlake High School accommodates about 400 today, in the future it can be expanded for 2,000

OVERLAKE School District No. 405 is one of the abnormally fast developing new communities in the State of Washington. Located on Lake Washington, it is only 20 minutes from Seattle's city center via the famous Lake Washington Pontoon Bridge. Where a very few years ago strawberries blossomed in the spring, now new buildings blossom 12 months of the year.

In planning the new high-school building the architects, George Wellington Stoddard and Associates, in consultation with Drayton Marsh who was then superintendent, determined a present need of 400 and an easily foreseeable peak of 1,600 to 2,000 pupils in from 10 to 12 years.

As in all new districts, school funds were at a minimum because of the lag in assessed property valuation, so early planning attempted to make additions to the existing inadequate structure. Fortunately, the school district was able to purchase a site of 47 acres of land "in the

By **FRANCIS E. HUGGARD, A.I.A.**

Of George Wellington Stoddard and Associates
Architects and Engineers, Seattle

raw" on a hilltop only four blocks from the center of the town of Bellevue, the population center of the district. "In the raw" meant just that; second-growth forest had to be removed to find the site, and a tremendous earth movement was required to provide adequate foot-holds for the first structure.

Our first act was to make a development plan for the entire site, utilizing, as far as possible, existing contours which varied from an elevation of 197 feet at the top of the hill to as low as 70 feet on several fringes at the meandering property line. Provision was made for a football stadium with running track for track and field events. Provision was also made for a baseball stadium which may be used for

practice; for a playground for girls' hockey and other field events, which may also be used as a practice football field; and for tennis courts. Because the tendency in this suburban community is to travel by automobile, one of the basic considerations in planning for these athletic fields was a central mall with a dual capacity as a parking lot for 1,000 cars.

The school itself was designed for 1,600 pupils with provision for adequate gym and auditorium facilities, each to seat over 2,000. Only five class periods were provided for each classroom even though there are six class periods in the school day. This allows for a small margin of safety in case scheduling cannot be perfectly worked out or some classes have less than the designed pupil load.

Our next problem was to build that part of the institution which would house 400 pupils adequately at present without limiting amenities for the entire structure later or hampering future expansion in any direction. Several large



Architect's sketch of Overlake High School when all wings are completed



Spacious lobby, looking toward office



Looking from the library to study hall



Well planned and lighted clothing room

courtyards are shown on the over-all plan. These will provide interesting landscape areas for year-around enjoyment, but more important, they will permit a number of long wings, each of a varying dimension from its neighbor, to house adequately the individual type of classroom.

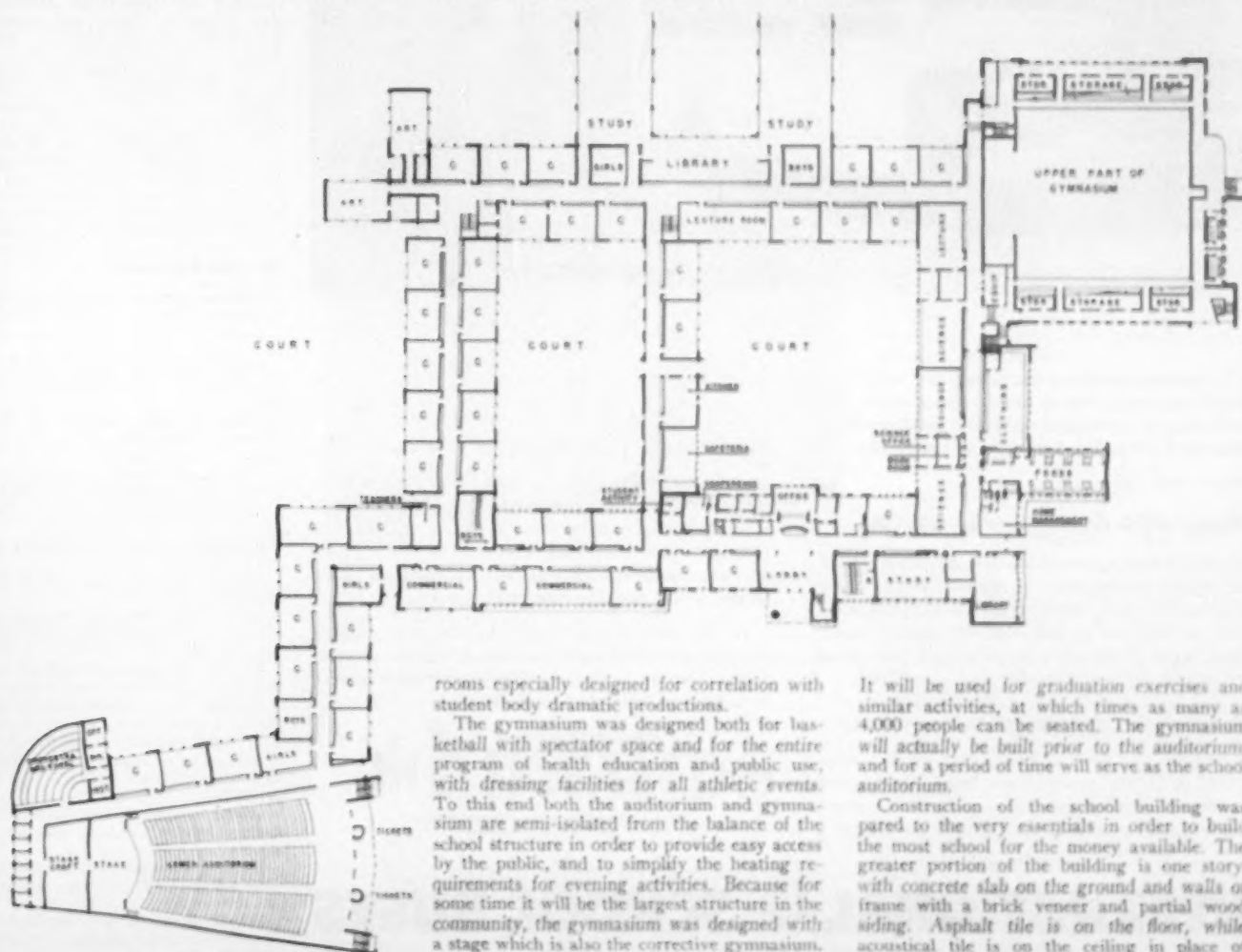
The basic high-school classroom is 22 by 31 feet, with some special rooms 25 feet wide and science rooms 28 feet wide. In the science department the laboratories are designed in pairs with offices and work rooms between. One such suite of laboratories without the dividing partitions is used in the first section of the school to house the study hall and adjoining library. Mechanical and electrical connections for future laboratory and instructors' tables have been roughed in for each room's future and perma-

nent purpose. The first unit cafeteria likewise was designed to utilize a single loaded corridor and two speech rooms.

In the second phase of construction this school will develop to house approximately 800 pupils. At this time one of the two major permanent study halls and half of the permanent library will be built. Directly under the library will be the serving kitchen. This system permits provision for the maximum school load at the 1,600 peak by the simple means of duplication of two study halls and two cafeterias. Lecture rooms adjacent to the science laboratories will provide temporary auditoriums for the student body until such time as the main auditorium can be built. The main auditorium unit will house not only the stage and stagecraft work-room but band, instrumental, and vocal music



Spacious and spotless food department



rooms especially designed for correlation with student body dramatic productions.

The gymnasium was designed both for basketball with spectator space and for the entire program of health education and public use, with dressing facilities for all athletic events. To this end both the auditorium and gymnasium are semi-isolated from the balance of the school structure in order to provide easy access by the public, and to simplify the heating requirements for evening activities. Because for some time it will be the largest structure in the community, the gymnasium was designed with a stage which is also the corrective gymnasium.

It will be used for graduation exercises and similar activities, at which times as many as 4,000 people can be seated. The gymnasium will actually be built prior to the auditorium, and for a period of time will serve as the school auditorium.

Construction of the school building was pared to the very essentials in order to build the most school for the money available. The greater portion of the building is one story, with concrete slab on the ground and walls of frame with a brick veneer and partial wood siding. Asphalt tile is on the floor, while acoustical tile is on the ceiling in place of

Make No Little Plans!

(Continued from page 5)

plaster. All walls are plastered. Roofs are insulated with four-inch rock wool batts between the joists.

Heating is by means of univents with high-temperature hot water as the heating medium. The univents also provide fresh air. Air is exhausted from each room, collected from a group of rooms by means of ducts in a plenum space

over the corridors, and taken to roof ventilators. Concentric ring incandescent lighting fixtures with silvered bowls were used not only as one of the most economical types, but because they require a bare minimum of maintenance in order to preserve the designed lighting efficiency.

The entrance and administration suite are in a two-story wing of solid brick masonry walls. In order to comply with fairly strict building codes, the entire structure is divided into a number of

smaller cells by division walls and fire doors. Because of grade conditions a portion of the future two-story extension will have a basement entirely above ground. The tower houses special activity rooms and club offices. The main two-story entrance lobby leads directly to the school offices, which are completely designed for the ultimate use although some portions will be used for other purposes for the present. Eventually the entire second floor will be developed for

student use exclusively, with girls' and boys' club rooms and so forth.

When let in the early spring of 1948, contracts amounted to less than \$10 a square foot, including mechanical and electrical work. Approximately two-thirds of the funds required for the building construction was furnished by the State Development Board and the other one-third by special bond issues in the community. The stadium is being built entirely by the community as a memorial to honor the youth of World War II.

In spite of the best laid plans, the school upon its opening day was overcrowded for the present population, and the master plan will be referred to even earlier than anyone had anticipated!

Achieving Good Rural Educational Programs

(Continued from page 2)

dent stimulating interest, suggesting sources of materials, encouraging participation of teachers, pupils, and citizens in educational study and planning.

If these events occur things will begin to happen in rural communities that will spread through states and across the nation. In community after community action will be taken to improve the status and qualifications of teachers and to create conditions under which they can do their best work. In community after community, whatever can be done locally will be done to improve school buildings, and to provide more adequate equipment and supplies. In community after community, citizens and teachers will be found working together to discover and meet educational needs.

When hurdles are found that can be cleared only through legislation of constitutional change, governors, legislators, and political parties will be spurred to action. As understanding deepens of what the nation will gain from a really good education program, citizens will make it clear that they expect Congress to acknowledge the nation's responsibility by passage of needed federal aid legislation.

On the Calendar

Building Service Supervisors and Employees Course, Teachers College, Columbia University, New York, June 5-9.

School Custodians' Conference, Purdue University, Lafayette, Indiana, June 19-20.

Mount Holyoke Institute on the United Nations, South Hadley, Massachusetts, June 25-July 22.

NEA Commission on Teacher Education and Professional Standards, Indiana University, Bloomington, June 28-July 1.

Elementary School Principals, St. Louis, July 2-7.

National Education Association, St. Louis, July 2-7.

School Plant Planning Workshop, Cornell University, Ithaca, New York, July 3-August 12.

Reading Workshop, University of Virginia, Charlottesville, July 24-Aug. 5.

National Audio-Visual Association, Hotel Sherman, Chicago, July 28-August 2.

Association of School Business Officials, Hotel Sherman, Chicago, September 25-28.

County and Rural Area Superintendents of Schools, Columbus, Ohio, October 9-11.

National Institute of Governmental Purchasing, Hotel Schroeder, Milwaukee, October 8-11.

School Food Service Association, Moehlenbach Hotel, Kansas City, Missouri, November 8-10.

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INTERNATIONAL SCHOOL BUSES

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Better Teeth for West Boylston, Mass.

PARENTS and teachers of West Boylston, Massachusetts, are engaged in a vigorous campaign to stamp out tooth decay in the youngsters. The PTA, the Massachusetts Dental Society, the School Department, the Worcester District Dental Society, and the Worcester District Hygienists' Society are all co-operating in the campaign.

The aims of the program are to prevent dental decay, to create more interest in general oral health, and to promote a good relationship between children and dentists. During the 1949-1950 school year, every pupil had a dental examination, the results of which were sent to the parents. These will be followed up by the school nurse.

In addition, junior and senior high-school students were given the opportunity to have bite-wing X rays of their teeth taken free. As part of the education program, all grades received instruction on toothbrushing techniques from dental hygienists. Movies on dental care were also shown, and humorous recordings on dental health were played to children in primary grades.

The Parent Teachers Association contributes its share by raising money to defray the incidental expenses incurred. All other expenses are paid for by the Massachusetts Dental Society.

\$300 Loan Starts School Lunchroom

ONE way to get a school lunch program started is to dig the money up out of your own pocket. So decided Ted Densham, Clearfield County, Pennsylvania, health officer who loaned \$300 to the sponsoring PTA to get a program started in the Graham Township Consolidated School of Morrisdale.

Mr. Densham's active interest in lunch programs started six years ago, when he was conducting a sanitary inspection that brought him to many of the district schools and gave him a chance to see a few programs in action. Since then he's gone far out of his way to help start new programs and give existing ones all the assistance he can.

Teachers have been a source of strength in the Clearfield County program, too. Miss Alice Milsom, home economics teacher at the Cooper Township School, started to help by looking after the lunch program in her own school. Then she found she could bring a balanced midday meal to smaller schools in the district by sending food out from her own kitchen. She has acted as consultant for many new programs and is responsible, with Mr. Densham, for much of the school lunch development in Clearfield County.

For Clearfield County is developing! Largely a mining area with few cities and many small towns, it has a population of more than 90,000. Six years ago school lunch programs were few and far between. Today 21 county schools participate in them.

Freedoms Foundation Offers Awards

SEND to Freedoms Foundation, Valley Forge, Pennsylvania, for full information and entry blanks on the awards to be made this year to school systems which have made outstanding contributions to teaching "The American Way of Life." Material submitted must be postmarked on or before July 31 to be eligible for an award.

Any county, town, or city public school

system or diocesan school system of the Catholic Church, or district school system of the Lutheran Parochial Schools, or any group of schools organized locally under religious or private auspices, or individual private schools are eligible for awards in this program. Entries will be divided into five categories based on total school system enrollment.

Any program designed to teach pupils the fundamental principles of the American Way of Life as stated in the credo

of Freedoms Foundation—oral, written, or visual—developed and undertaken in any grades from kindergarten through high school between July 1, 1948 and June 30, 1950 is eligible.

Chairman of the judging group is Dr. Robert L. Johnson, president of Temple University, Philadelphia. He will be assisted by an awards jury of 21.

The 75 school systems which submit descriptions of the finest programs designed to teach school children the fun-

damental principles of the American way of life will be awarded complete "Freedom Libraries" consisting of books, films, pamphlets, and other documents which explore and explain the heritage of freedom. These school systems will also receive Freedoms Foundation honor medals.

The superintendents of the 10 best school programs will be invited to Valley Forge, at the Foundation's expense, to choose the material that will make up these "Freedom Libraries."

For more facts use Inquiry Card, SM-28

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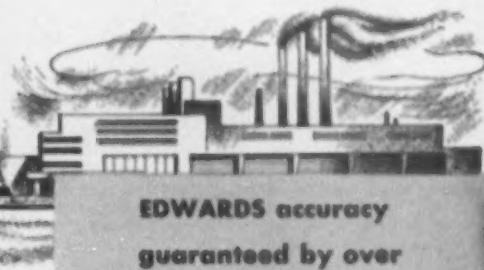


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SCHOOLS CAN PROFIT FROM PRACTICAL SMOKE CONTROL

By E. E. FINN

Director, Smoke Prevention Clinic, Anthracite Institute

SCHOOLS as a group have as large a stake in eliminating smoke from the community as any other group. Public opinion is becoming more critical and smoke laws have grown more severe in recent years. People know that smoke causes huge damage and they are becoming aware that it can be eliminated.

William H. Byrne, director of the Smoke Control Bureau of New York City, says, "Smoke will corrode metal and will damage certain types of stone. In construction it restricts choice of building material. It dirties floors and walls, requiring additional cleaning and painting. It increases the cost of ventilation and restricts the choice of decorating material. In some instances, smoke depresses real estate values."

Practical smoke control can benefit

the schools in many ways, for it can:

1. Turn objections of near-by property owners into favorable comment.

2. Improve appearances of school grounds—playgrounds, shrubbery, school buildings.

3. Make for general cleanliness and safeguard student health.

4. Aid community approval and good relations.

5. Improve operational efficiency and save money.

This last point is highly important—especially in terms of today's high costs. Control of smoke in heating school buildings is primarily an engineering problem. The solution of the problem will—in the overwhelming majority of cases—increase efficiency, cut down on fuel bills, and make budgets go farther.

Smoke originates in the fireroom. It is the result of inexperience and carelessness in utilization of fuel and equipment.

Facts about the chief heating fuels and smoke are, therefore, important in understanding how to correct it. In school heating three fuels are most commonly used—bituminous coal, oil, and anthracite.

Anthracite is practically a pure carbon and does not produce smoke because it contains little volatile matter and, therefore, burns itself out in the fuel bed. Combustion does not take place in the form of rapidly rising and potentially smoke-carrying gases, as can be the case with other fuels.

Bituminous coal and fuel oil contain basically the same set of hydrocarbons which must be completely burned at temperatures above the point at which the smoke is generated. When these hydrocarbons come in contact with relatively cooler boiler surfaces, they are chilled below their ignition temperatures, promote smoke, and waste fuel dollars.

However, all fuels can be burned smokelessly if the proper knowledge, equipment, and care are used in their combustion. Smoke is caused by one of three combustion mistakes—too low

temperature, too little air, or allowing too short a time for complete combustion. Once the general facts about smoke are known, corrections in equipment and firing practices can cure the condition.

For example, bituminous coal tends to form a surface of coke in the firebed. But if the fireman uses the slicerbar correctly, smoke will be controlled, the fire will burn more efficiently, and fuel will not be wasted. The proper method is to crack the coked surface at frequent intervals. Then whip down the cracks so that enough air comes through to feed the fire for good combustion. Too much air will make for inefficient combustion.

Another practical measure is to admix bituminous with anthracite. Tests conducted in conjunction with Army engineers and the Bureau of Mines at Camp Kilmer showed that the admixture of small sizes of anthracite to bituminous coal definitely will reduce smoke in direct proportion to the amount of anthracite used. Within permissible limits the admixture will also give comparable load-carrying performance with no economic losses. These proportions vary from 25 to 80 percent of anthracite, depending on the conditions.

This admixture technique applies par-

For more facts use Inquiry Card, SM-3N

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ticularly to school buildings, since solid fuel equipment is probably the most prevalent kind of heating plant in educational structures.

With fuel oil, proper air adjustments are absolutely essential to efficiency of operation and to smoke prevention. Since these adjustments are more critical than with the solid fuels, frequent check by a well-trained firing-room attendant is the only sure method of controlling smoke production. It is also an investment in saving of fuel dollars.

Where oil burners and an incinerator are connected to the same chimney, the draft for the oil burners is changed every time the incinerator fire is on or off. This causes smoke unless a change in draft control for the oil burners is made to compensate.

Devices Are Available

To determine the immediate causes of smoke and get some idea of the best corrective measures to use, there are a number of instruments which capable fireroom personnel can use to estimate the situation. Once the situation has been analyzed, there are other devices or measures which can be used to correct conditions.

According to a report of the Anthracite Institute's Smoke Prevention Clinic, based on technical and practical studies in this field, smoke control instruments belong to two groups. The first and more simple group checks equipment performance, i.e., combustion efficiency, and the second and more complex group detects actual smoke production and aids in correcting it. The instruments in the first group consist of the following: draft gauge, thermometer, CO₂ analyzer, and temperscribe.

These instruments are used to determine three things—whether there is adequate draft; whether there are leaks and where they are; and whether there is sufficient "boiler resistance" to dam and extract the heat which the fire is producing.

The draft gauge is used to get three readings—one at a draft before air enters the fire, one on the combustion space above the firebed, and one at the breeching. From these it can be determined whether draft settings provide the correct amount of air for efficient combustion in the particular piece of equipment. The thermometer registers temperature at the breeching and indicates whether too much heat is escaping. If so, combustion is inefficient and potentially productive of smoke.

CO₂ Analyzer

The CO₂ analyzer is used to take a sample of air leaving the boiler. The percentage of CO₂, the indicator shows demonstrates the combustion efficiency of the fire, in about the same way a metabolism test does of the human body. The temperscribe works like an automatic stop watch to record the operating cycle of the equipment. It shows this on a clock face. If the "off cycle" which it shows is too long, the boiler surface will get cold, and smoke will result when the fire goes on again. The ideal plant will produce heat within the boiler at the same rate at which it is extracted from the boiler—a condition which anthracite and coke normally provide.

The second and more complex group of instruments is used to keep a watch on smoke and control it.

The simplest of these is to mount a mirror at an angle outside of the window to show the top of the chimney. Like the rear view mirror of an automobile it will enable the fireman to see when his fire is actually producing smoke. For more precise measurement of smoke, a

simple smoke sampler can be used. This takes a sample from the breeching where the gases leave the boiler to go up the chimney. The sample shows as a smudge on a piece of white paper, and can then be checked against a Ringelman chart. (Free copies of this chart are available on request from Pittsburgh Jointless Firebrick Co., 1800 Kingsbury Street, Chicago 14, Illinois.)

Once smoke has been detected, use of instruments and efficiency measures to

improve combustion conditions causing the smoke often can effect a correction quickly and cheaply.

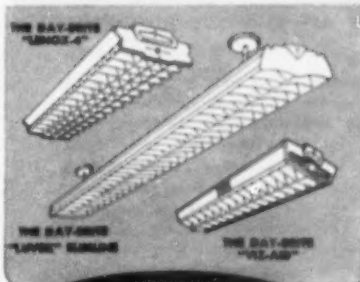
For larger plants, where enough fuel is used to warrant expenditure for "complex" smoke control equipment, there are a number of devices available. Estimate the cost of the fuel which will be saved by installing these devices and proportion it to the price of instruments or alteration of the plant. Examples of such measures are:

1. Adding over-fired steam or air jets.
2. Adding smoke alarm or indicating device, either automatic or manual, for operating the jets.
3. Raising boiler to provide adequate combustion space.
4. Adding an efficient stoker under the raised boiler.

Some of these measures apply to bituminous coal, others to oil firing, but in either case it is advisable to call in en-

For more facts use Inquiry Card, SM-3N

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024

Practical Smoke Control

(Continued from page 9)

glowering consideration to determine which measure should be used and whether it is economically practical.

School buildings which burn anthracite need no devices primarily used to control smoke, because anthracite cannot be made to smoke under any conditions of combustion. However, the first three instruments which are advised for

purposes of checking efficiency of combustion and saving fuel dollars can be profitably used to improve the efficiency of anthracite combustion.

Regular heater conditioning is also important to insure combustion efficiency and control smoke, no matter what fuel is used. On the average, this will save 10 percent or more of the fuel costs as

well as help in controlling the smoke.

That schools can use the above information to take action and achieve results has been proven in a number of cases. For example, the entire school system of Elmira, New York, recently eliminated smoke from its schools. In addition to the techniques outlined in the preceding material, it was found advisable to awaken community interest in the project, and to teach fireroom and supervisory personnel all the proper

measures for correction of the condition.

Since it is obvious, in smoke control, that public buildings should set an example, school authorities in Elmira agreed to take steps in their buildings. Announcement of the campaign was made in the local press, a one-day lecture course was arranged, and engineers and custodians were called in to attend this and a question period. Engineers of Anthracite Institute cooperated in the work and in demonstrating correct firing methods suited to the different types of schools and equipment in the city. Smoke was eliminated at all plants and the custodian's attention period was decreased from every 30 minutes to every three hours.

Gratifying Results

The practical results of smoke control were very gratifying. Not only was custodian time saved, but fuel bills were measurably cut down. In the Beecher School, Parley Coburn School, and Elmira Free Academy, engineering studies showed markedly increased efficiency. This was achieved (1) by admixing anthracite in suitable quantities with the bituminous coal being used; and (2) by correcting the faulty practice of adding a second boiler too early in the fall and keeping it on too late in the spring (this allows for boiler surfaces to warm or cool in sequence, eliminating smoke). Dollar savings ran as high as 33 1/3 percent in heating costs alone.

Similar engineering to improve efficiency and to control smoke has produced equivalent results, including the dollar savings, in schools in New York City, North Tonawanda, New York, and elsewhere.

In North Tonawanda the school system is undertaking a one-day training course in smoke control and heating efficiency to achieve the same results as at Elmira.

Consultation with competent smoke control organizations can often help school managers to solve their smoke problems promptly. Examples of these experienced and helpful organizations are municipal smoke control bureaus, many retail fuel dealers, commercial engineers who have specialized in smoke problems, and public service smoke abatement organizations.

An example of the latter is Anthracite Institute's Smoke Prevention Clinic, located at 101 Park Avenue, New York City, recently established and now available to give free help to building management on individual smoke problems.

A Great Force For Better Schools

(Continued from page 3)

We resolve that the Educational Planning Committee stand squarely behind the board of education in its efforts to see that teachers are paid adequate salaries, and urge the citizens of Battle Creek to support the board of education in its efforts to this end.

We wish to express confidence in the board of education and the executives who operate our educational system as to their ability and integrity. It has been a pleasure to serve on this committee and to be identified with an effort to improve our educational facilities in this community.

The committee proceeded to submit a plan that called for a two-year program of repairs in the amount of \$254,526,000, a five-year program of \$3,019,000, and a long-term program of \$4,206,000.

Sufficient groundwork had been done to acquaint the entire community with the needs and the facts. Certain "pockets" of vigorous opposition persisted. The result was that the millage request in two elections in succession was defeated.

The Citizens Committee reconvened and began to restudy the needs and to



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JUNE, 1950

prepare for a new attack upon the problem. The third attempt resulted in an overwhelming victory with 78 percent of the voters authorizing the first unit of three mills of tax to be levied for a program of "comprehensive repair and improvement of the city schools." It was the first substantial appropriation for building repair and improvement in almost 20 years. This was, however, only the beginning.

Working with the Citizens Committee, the community proceeded to vote the city from under the 15 mill tax limitation, thus doubling the operating funds available to the schools and making unnecessary periodic campaigns for special millage for regular operating purposes.

A Citizens Committee on City Affairs was organized along similar lines to that of the Citizens Committee on School Problems. The story was the same. After months of work, an examination of city needs—and those, too, were many—the community voted approval to an extensive program of revision and improvements.

Community Improvements

Today this community can boast of an extensive municipal parking lot system in the downtown area, improved streets, widened through streets for increased postwar traffic, new sewer lines, new street maintenance equipment to keep the streets clean in the summer and remove snow in the winter, and new civic recreation centers.

The parks and playgrounds have been greatly improved and are better cared for than in many years. The whole community has taken on new life. These achievements toward a better community are in considerable part the result of careful and thoughtful planning of the Citizens Committee with able leadership in the city government.

The latest development, which is experimental in nature, is the consolidation of the two Citizens Committees into one permanent organization with a simple constitution and by-laws, and with associate and active members. The executive committee of 15 members assumes the major role in the handling of the business of the Citizens Committee on Civic Affairs, as it is now known.

There is a new program of school plant expansion which has received extensive study by the committee and has been tentatively approved for action by the board of education. It is anticipated that before this appears in print the new organization will give its blessing to an extensive building program, which will run into several millions of dollars, to meet a 30 percent increase in the school population expected over the next 10-year period.

Bigger School Budgets

In all of the study and planning, the Citizens Committee has insisted that operating budgets for education be increased also. As a result, today, after five years of progress, the average teacher's salary has approximately doubled, and instructional supplies appropriations have multiplied several fold.

Better working conditions for teachers have been established. Battle Creek is one of the few communities in the state providing accumulative sick leave up to 120 days; sabbatic leave for purposes of study or travel abroad with one-half pay after six years of teaching; maternity leave; summer study on school board scholarships; and separation pay at time of retirement. This is based upon all accumulated sick leave and may amount to one-half year's additional salary.

The citizens are sold on the value of a Citizens Committee and if anyone doubts that teachers are, just ask those

in this school system. But best of all, the children and youth of this world-famous industrial and health center are getting the chance to attend modern schools, taught by an able faculty of professionally minded teachers, in classrooms where the best practices in modern teaching are the rule, and where there is an amazing amount of security on the part of everyone working in the system.

We expect to continue to depend upon the Citizens Committee, the PTA, the

Educational Advisory Council, and the Teachers Association to keep the total community fully aware of the schools' progress, their problems, and their continuing needs in the difficult but challenging days ahead.

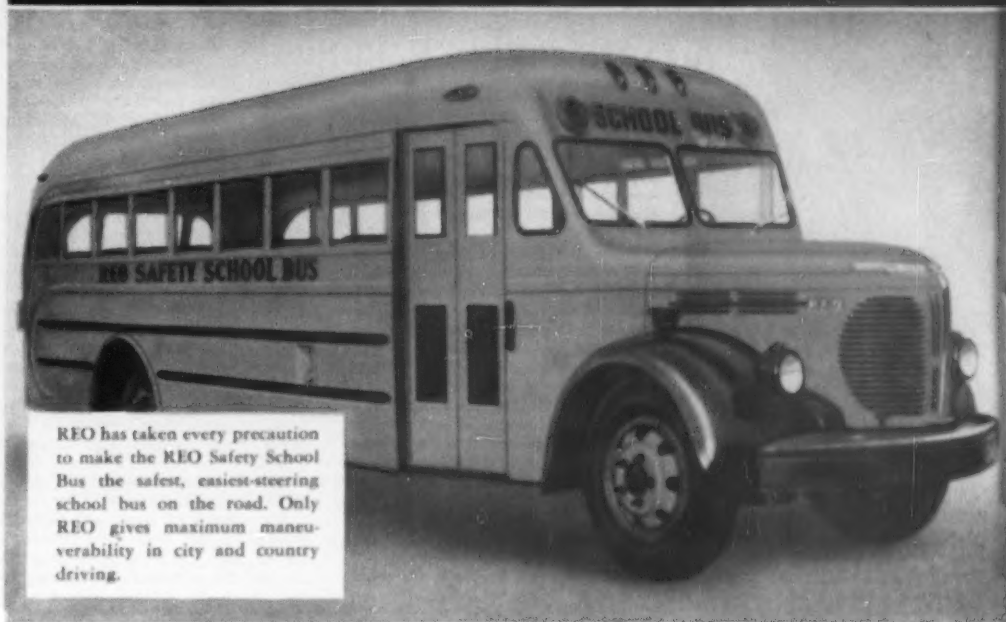
One final word should be said by way of appreciation for the sacrifices of time and energy on the part of the men and women who have voluntarily served on these citizens committees. Their interest, devotion, and wise counseling cannot be

measured in paltry dollars and can only be paid for as the returns on their efforts are demonstrated in better educational facilities and improved programs of instruction for the children and youth of Battle Creek.

MORE than five million children are now transported to school at a cost topping \$130,000,000. How different from the year 1918 when 200,000 children were transported at a cost of \$8,000,000!

For more facts use Inquiry Card, SM-7N

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The school bus that exceeds all safety standards set by The National Education Association.

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SAFETY SCHOOL BUS

THE ancient high-school curricula is in the process of being battered down and reconstructed with down-to-earth courses, reports *Educator's Washington Dispatch*.

Eleven states have already created a life adjustment education committee or a group to push revision of high-school courses. They are Colorado, Connecticut, Delaware, Illinois, Kansas, Michigan, New Hampshire, New Jersey, New York, Washington, and West Virginia.

For more facts use Inquiry Card, 838-828

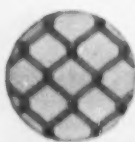
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THERE'S PLENTY OF SUMMER WORK

By **WILLIAM R. BOONE, Principal**
Senior High School, Orlando, Florida

THE Florida school law requires that principals be on the job for 12 months, and everyone seems to be enthusiastic about the situation. It is certainly a new deal for the youngsters that attend school, because one of the most important phases of administration and organization comes during the summer months. (I discovered that my first year as principal, before the law was passed.)

In the office of a medium or large high school there are endless transcripts to be sent to colleges, and others handled for the students. Transcripts of the continual new registrations must be obtained. There are references to answer every day, salesmen to interview, applicants to screen. Records of each and every student must be checked and double checked, and where there is any question about the registration, the student must be contacted and adjustments made. In all cases of incompletes and failures the parents or guardians must have a full, written explanation, and be given an outline if there is any opportunity for the pupil to make up the work.

When a student has passed general mathematics and biology with a D and then signs up for plane geometry and physics in spite of all of the years' guidance, that matter must be adjusted. Those who desire a foreign language but do not have the necessary background must be notified and given a hearing. Sometimes extra work in English grammar will prepare the individual for the language course, and he should be told the possibilities.

When all of the registration cards have been checked, changed, and properly filed, a list of the next year's subjects can be made and the number in each group ascertained. If additional faculty members are needed the administration can start to work in the right direction. A tentative schedule can be made. The relative standing of each class can be made to fit the number of students in each category, in ability and in subject matter. Monitors, office and laboratory assistants, the library helpers, clinic caretakers, and cafeteria workers can all be placed. Then after the general conflicts are eliminated the principal is almost ready to do some real work!

With constant reference to the perma-

nent record, guidance sheets, test results, and other pertinent information the schedules can be made out. Students will come in and look over their schedules and offer suggestions. Once the schedules are copied on the Kardex card all changes are out until school is in session. Then a time can be assigned for changes.

Correspondence with the members of the faculty must be kept up. It keeps the faculty members' ideas alive and active to assist in the work. The valuable suggestions that come from the faculty members are monumental aids to any administration. Each teacher is sent her schedule as quickly as it is completed.

Each year specialized groups, such as those in forensics, vocal and instrumental departments, and athletes all line up for their work with the assistance of the heads of those fields. Since the boys who are going out for interscholastic athletics get the last period off for physical education, they must be listed to avoid later schedule changing. This gives the school an opportunity to forward the list of names to the state athletic association. If ineligible a boy is written a letter explaining why, and his name is handed over to the athletic director. Since this system was inaugurated, the matter of ineligibility has practically disappeared, and last year 12 of the 27 members of the first-string football group were eligible for the National Honor Society.

The director of the tenth-grade orientation program and the deans work on their plans during the summer and thus get their work effectively arranged at a time when the administrator has ample time to confer with them on their many problems.

Future office assistants are asked to be at the office at various times. Various teachers come for a day or two, and students interested in certain activities come and work out plans for the following year. There is much typing, filing, mimeographing, duplicating to be completed. A surprisingly large number of volunteers is available after the system has once been established. It makes students and teachers a part of the system.

The ordering for next year's classroom supplies on the basis of the budget is carried out. This is far better than taking the time from the work during the

school year. The reconditioning of the building is supervised. Assistance is given to new teachers in securing living quarters. Students desiring jobs are readily assisted.

Two weeks before the actual opening of school the teachers report for the pre-school session. This consists of general meetings, subject matter discussion groups, distribution of state textbooks, preparation of laboratory equipment, and arrangement of rooms to make them more

For more facts use Inquiry Card, 838-828



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When the administrator works in summer it makes the next year's work simpler

attractive. All plans for the opening of school are given consideration. What a difference from the old system of having the teachers come the day before school opened without orientation and then trying to have the first few days run smoothly!

It usually takes us an hour to register 1,500 students and get them out of the building. Why discourage them the first day by keeping them standing in line or waiting for anything? Keep them moving and busy and their ideas of devilment will decrease.

Our student council sees that there is no confusion at the opening of school. They make their plans during the summer and are ready to function when any matters seem to be stymied.

During the summer months good public relations are cultivated. The service clubs and other organizations are looking for entertainment groups and are even willing to listen to talks on education! Students giving these talks are usually far more effective than all the administrators that can get on the platform. Why should the specialized departments be allowed to slow up during the off school periods?

Youngsters, as their elders, like attention, and should receive it 12 months of the year from the schools. The public likes to know who is going to college. The newspapers are anxious to print such information. New additions to the faculty should be announced and boosted. New policies of the school can be made interesting. No school should hide its light under the proverbial bushel. Discussions should be held with ministers, laymen, and PTA members. The schools belong to the public, and the public should be informed just what is going on in these schools of theirs.

In the summer the school administrator has an opportunity to get right down to the grass roots and get most of next year's problems solved. It's a fine period of accomplishment.

Yes, New York City's School Costs Are Up

SOARING costs in education are reflected in the New York City Board of Education's annual financial statement, which discloses that the expenses of the city's school system for the school year ending June 30, 1949, reached \$247,981,154.49, an increase of \$19,861,392.14 over those of the previous year.

The report breaks down the per capita costs of education, figured on average daily attendance, as follows:

Activity	Per Capita Cost of Instruction	Over-All Per Capita Cost of Education
Kindergartens	\$111.40	\$192.91
Day elementary schools	191.58	263.55
Junior high schools	218.58	294.69
Day senior high schools	269.23	347.95
Vocational high schools	325.38	407.71
Evening elementary schools	28.40	40.96
Evening high schools	79.04	104.87
Evening trade schools	61.65	77.05

The direct cost of instruction over the school year for each child increased by \$9.28 in the kindergartens, \$7.95 in the elementary schools, \$14.36 in the junior high schools, \$12.99 in the academic high schools, and \$20.90 in the vocational high schools.

These direct costs, which accounted for 83.62 percent of the board of education's

expenses last year, include salaries, textbooks, library books, supplies and equipment, and overhead expenses of instruction. They do not include debt service charges, health service in the schools, the lighting of board of education buildings, or pensions.

An additional 1.81 percent of the budget, amounting to \$3,528,995.46, went for auxiliary services. This fund provided for playgrounds, baths and pools, athletics, corporate schools, literacy tests, child

guidance, school lunches, and transportation of pupils.

Another 11.11 percent totaling \$21,639,073.20, was spent for the operation and maintenance of school buildings and grounds.

The remaining 3.46 percent, amounting to \$6,749,689.07, went for the administration of the school system and for certain fixed charges.

Budgetary funds of the board of education were augmented by \$53,262,752.31

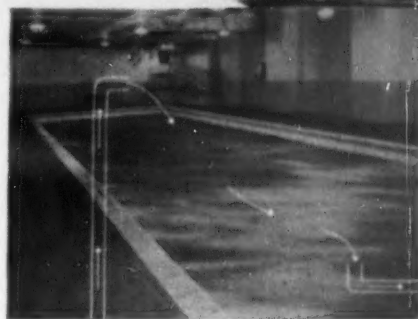
appropriated by other city agencies for educational purposes. This fund covered expenses of lighting, health services, retirement, and debt service.

The board now owns 890 building units, and leases or uses on loan space in 110 others. The capital investment for new school structures in 1948-49 was \$25,907,123.92.

In 1900 the board's total investment in school plant was \$89,712,772.15. As of June 30, 1949, it was \$644,690,044.72.

For more facts use Inquiry Card. RM-10N

RECIRCULATING GAS WATER HEATING SYSTEM ASSURES UNIFORM POOL TEMPERATURES

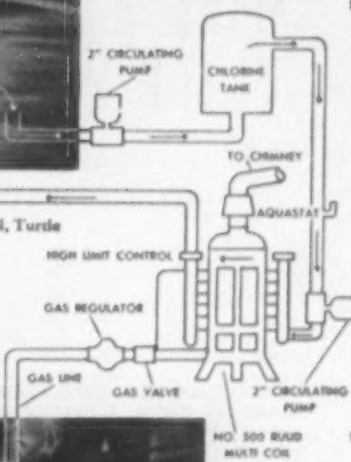


Sixty-foot by thirty-foot swimming pool, Turtle Creek, Pennsylvania, High School.

Maintenance Superintendent Fred M. Schmitt discusses Gas Waterheater operation with R. N. Spear, Ruud Mfg. Co. Gas Waterheater at left furnishes hot water for showers, washrooms, etc.



Schematic arrangement of recirculating system using single Gas Waterheater for tempering water in swimming pool.



ECONOMY is an important feature in the operation of Turtle Creek High School pool—the economy of water-heating with GAS, plus the continuous recirculation of 50,000 gallons of water.

Pool water-temperature is maintained at a constant 78° and the water is pumped through the system at the proper rate for chlorinating and re-heating. The Gas Waterheater is automatically controlled to compensate for all operating variations.

But the pool system is only one of three Gas Waterheating installations in the school. Hot water, for gymnasium showers and the school washrooms, is furnished by a Ruud #5 parallel-flow Gas Waterheater utilizing a 750-gallon tank for off-peak storage of water for showers.

In the school stadium a third Gas Waterheating installation in the dressing rooms includes a Ruud #500 M. C. Waterheater connected to a 1000-gallon storage tank to accommodate peak demand from showers.

These three systems demonstrate the flexibility of Gas Waterheating Equipment and the versatility of GAS for automatic supply of hot water for all requirements. Your Gas Company Representative will give you complete details.

Illustrations courtesy Ruud Manufacturing Company, Manufacturers of Gas Waterheating Equipment and Heating Boilers Installation by Gray & Duquette, Turtle Creek, Pa.



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SCHOOL LUNCHROOM DEPARTMENT



By **MARY FARNAM**
Editor, School Management's School Lunch and Cafeteria Department, and Director of School Cafeterias, Cleveland Heights

A PRACTICAL long-range plan for the school cafeteria or lunchroom is an absolute necessity. Make your plans and then work your plans. The walls, floors, ceilings, windows, and other structural fundamental parts of the school buildings in which cafeterias are located can be changed. Such changes usually are all to the good. We

moved one of our school cafeterias from one part of the building to another, and the next year our business doubled.

The former location of this cafeteria was a good example of a makeshift location. The dining room was a small room formerly used for a library reading room. The kitchen was located in a "V" shaped room that could not be used to advantage for any other school activity—nor for a cafeteria kitchen either. In the tip of the "V" was an oversized porcelain enamel household sink with very small dishwashing drainboards on either side. Fanning out from this point were the stove on one side and the refrigerator on the other. Across the top of the "V" was the cafeteria serving counter. The counter was shaped like a "Z" to give more space in the small area available. Drop-leaf shelves were the only worktables. Across the hallway, the storage room was the enclosed end of an unused boys' toilet room off the gymnasium.

For several years I made plans to move the cafeteria to another part of the building. Finally, with a change in school enrollment, three rooms at the other end of the building became available. These rooms were on three sides of the end of the hall, with doors from each room opening into the hallway.

To make a dining room, the wall between the center room and the left-hand room was knocked out in the middle, making what is really a large open archway. However, it gives the feeling of one large room.

We used the room on the right as the kitchen, since there already were some water and drain pipes located along one wall. Between the kitchen and the center room was a large closet which extended almost the entire width. That closet and wall were removed and double doors installed. A window on one kitchen wall was made into a door leading to the outside. A stairway was made from a discarded iron fire escape. This gave us a delivery entrance directly to the outside and a driveway to the street without need for crossing the playground.

A scale plan for the floor and each wall was made, using drawing paper ruled in one-fourth inch squares. Each one-fourth inch square equaled one square foot. A model of each piece of equipment was also made, using the same scale size. By moving these models around, several layouts were worked out before the final arrangement was decided upon.



Business doubled in this relocated, redesigned school cafeteria

MAKE A LONG-RANGE PLAN FOR YOUR CAFETERIA

You'll get lots of satisfaction from seeing all of your dreams come true

Just before the final plan was to be checked by heads of the departments that were to do the work, I laboriously marked out the entire floor and wall plans, using a chalk to draw the outlines of each piece of equipment on the floor and the walls. Imagine my feelings the next day, when we walked in, at finding the cleaning crew had been there after me and scrubbed the floor and washed the walls! But I still had my model plan, from which a larger working plan was made.

When we moved the cafeteria the only old piece of equipment from the former cafeteria was the refrigerator. The outside of the box was painted the same light green color as the walls, which made the room seem larger. A corner of the kitchen adjacent to the outside door was enclosed to the ceiling and made into a storeroom with shelves on three sides.

A new heavy-duty, two-oven range, made with half open-burner top and half solid top, replaced our antique household model. Metal dish sinks, dishwashing machine, and dishboards were placed under the windows along the wall opposite the counter. There were no heavy-duty electric lines available, so a gas-fired dry heat food table was installed.

For reasons of economy the counter was made of wood and covered with a composition top. It will some day be topped with stainless steel.

Open shelves for dish storage and enclosed shelves with doors that could be locked were built under the counter. A worktable of proper height—with toe-room at the base, enclosed cupboard space, and drawers built under the top—was placed practically in the center of the kitchen space. It is between the refrigerator and the stove, and accessible to the counter at one end, and the dish machine and sink tables at the other end. A mixer was installed at one end of this table.

Since we needed additional storage space, an enclosed cupboard was built on the same wall as the outside door. This was made by using the outside wall for the back, and an offset pillar, which is a wall support, for one end. A former coat closet extending along one wall of the dining room was equipped with shelves and used to store paper goods and other equipment not needed daily.

At the end of the dining room near the exit door used by the youngsters, a worktable was enclosed with wall board on one side and both ends. The board extends from the floor to about three

feet above the table top. A table-height opening was cut in the center of the side of this enclosure. Soiled dishes on the trays are returned here and pushed through the opening. Then student workers scrape and sort the dirty dishes and stack them on a dish truck. The milk bottles go directly into empty milk cases placed on a dolly on wheels. Soiled silver is placed in an oblong wooden box. Waste paper is deposited in a large trash container placed adjacent to the soiled-dish opening.

In the hallway from which the children enter the cafeteria, several benches were placed. Children are called to lunch by rooms and can sit on these benches while awaiting their turn. On the opposite wall, a long row of coat hooks was installed. Here the youngsters who plan to go out to play after lunch have a convenient place for their wraps; they do not have to bother with them in the lunch line or dining room.

The picture to the left of this column is taken from the corner of the room at the end of the hall. It shows how the removal of a partition makes these two rooms appear as one dining room. A view of the kitchen is shown through the double doors that replaced the removed closet. The refrigerator at the left, recently purchased, is used for holding the half pints of milk from delivery to service time.

This room is one example of a dream that came true. The cafeteria employees like it and wonder how the work was ever accomplished with the former antiquated layout. Financially it has paid for the cost many times. From the educational viewpoint a larger, lighter dining room with greater seating capacity and wider aisles is a better place for the youngsters to eat their lunches—whether they bring the lunch from home entirely, in part, or buy their lunch from us. It didn't happen overnight. But it was worth planning for and waiting for, and has paid off in many kinds of dividends.

Whether you have one cafeteria or many, the first thing to do in planning is to make an objective appraisal. Pretend you are a visitor and are seeing the cafeteria for the first time. I am sure you have visited other school cafeterias. You returned home feeling either smug because yours was far superior, or discouraged because you did not have all the up-to-the-minute equipment and an ideal layout. If you are inclined to say to yourself that nothing can be done about it, you are admitting defeat and a lack of genuine interest on your job and the present and future welfare of your cafeteria.

If you are a manager in a large system, do not think that nothing can be done about it because you are not the director. A capable supervisor or director is always pleased when any member of the staff comes up with a really sound, practical idea for improvement. It is vague gripes and criticisms about the cafeteria that fall on deaf or unsympathetic ears.

If you are the head of your department, with several cafeterias under your supervision, you will be challenged to evaluate which changes or improvements should come first. Your financial situation is probably like that of most school

systems and cafeteria departments. The money available has to be stretched, divided, and allocated for many uses. But your time will come!

The important thing is to be ready to put your ideas into reality when it does. Be a collector. It costs little but it pays dividends. Read alert publications on institutional feeding. Take advantage of the offers of the equipment manufacturers and other cafeteria supply dealers to send you their free booklets. Talk to the salesmen these firms will send to discuss your problem. You are under no obligation to buy. These companies know that if and when you are ready to buy some piece of equipment or buy some service they have to offer, you will consciously or unconsciously turn to the company or salesman with whom you are acquainted. They can wait. They have a long-range plan or they would not stay in business year after year.

Attend any professional meetings you can; visit the exhibits and talk to the company representatives that are experts in their particular fields.

Make "Wish List"

We have a physical inventory form which lists every item and piece of equipment—large or small, new or "antiquated"—that we have in all our cafeterias. (Sorry, copies are not available for distribution.) Each year I ask the managers to write in everything they would like to have if money were no object and they could really rub Aladdin's lamp. From these "wishes" we have planned for the equipment we would like to buy if and when we could.

For example, one manager asked each year for a frozen food cabinet and composition trays. When she first asked for this equipment it was still in the experimental stage. Now it is taken for granted as a necessary piece of equipment. After years of waiting and planning, we have a frozen food cabinet in each of our cafeterias.

Everyone has to replace silverware, glasses, and dishes from time to time. Do you continue to buy the same kind you already have when perhaps newer, more modern equipment is available? If you have a plan in mind and are ready, make a start at changing the old for the new where you can make an improvement.

Pretty New China

Our cafeterias formerly had plain white china which was heavy, unattractive, and hard to keep clean since the surface glaze was wearing off. In our planning, we picked out a well-known brand of china with a protective edge that the manufacturer claimed cut down breakage. We selected an all-over pattern in soft green. The next time we needed dishes we bought this patterned china and placed it in our largest, busiest junior high school where it got a good workout. The old china was distributed to other schools to make their temporary replacements, since we could only afford to spend the amount of money actually needed for the yearly replacement in each school.

But one school had new china. Since this happened to be the oldest school, with the oldest equipment, the new china gave the cafeteria a new look and a lift. Everyone, from the cafeteria employees to the youngsters, was pleased. I did hear some cries of favoritism and "why didn't our school get the new china?" But the other schools received some piece of new equipment which perhaps was not so apparent to everyone. Gradually, by following this plan over the years, we have replaced the old white china and now have all patterned china.

Along with this plan, simplification of the number of different sizes and pieces

of chinaware was carried out. One size plate, for example, is used for single orders of hot foods, salads, dessert, as a bread and butter plate, and even as a saucer for the extra cups at a large party. The grapefruit size dish is used for shortcakes, chili, tossed salads, and other purposes.

Formerly the silverware was stamped with the name of each school. I was appalled at the loss from silverware taken for souvenirs at the first football

banquet. Each time a school borrowed silverware there was the cost of labor for the time consumed in sorting it later. Now we buy only plain silver, which is cheaper. It is interchangeable among all schools, has no souvenir value, and does not need to be replaced so often.

In the elementary schools, it bothered me to watch the young children dribbling soup because the soup spoons, which were really tablespoons, were too large to fit

their mouths. The piece of silver itself was too large and awkward for them to handle easily or efficiently. We stopped buying tablespoons and bought cream soup or bouillon spoons instead, and the children are happier.

In a new elementary school we use only junior-size silver such as is used on airplanes. It really is right for young children, and even the adults like it. From now on, as silverware is needed in an elementary school, replacements

For more facts see Inquiry Card, SM-11N

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Make a Long-Range Plan for Your Cafeteria

(Continued from page 15)

will be made in this size. Eventually all the elementary schools will be so equipped. To speed up the process of replacement, the larger-size silver will be moved to the junior high schools and high school as new silver is needed.

As new trays are needed we buy color composition trays instead of metal and try to have one school equipped at

a time, moving the other trays to other schools during the transition.

Over a period of years we have changed the color of the walls in our cafeteria kitchen, serving rooms, and dining rooms to light attractive colors such as green, peach, and yellow. This is a tremendous improvement over the drab cream or the color I call "base-

ment" brown with which too many school-rooms and cafeterias were painted for many years. These new colors give a psychological lift to the people using the room. From our standpoint, the rooms are lighter, seem larger, and certainly are more attractive places in which to work and eat.

Gradually fluorescent lighting is replacing the incandescent type of school lighting in our cafeterias. Just a word of caution here. There are many shades

of this white light. If you are installing fluorescent lights, be sure that the color used in the kitchen, serving room, and dining room is not the white that makes the food a peculiar, unfamiliar, unappetizing color.

As furniture is replaced, tables of different heights with accompanying proper-height chairs are purchased to fit the various sized pupils who use the dining room. Some of our regular tables were lowered by cutting down the legs; we then bought lower chairs to fit this new height.

Have you watched the children, especially in your elementary schools, going along the serving counter? Is the tray rail too high? Are the trays almost at shoulder height for the smaller children? The tray rails in most cafeterias can be lowered several inches to give a more efficient height for the children. Perhaps you can even lower the height of the counter.

Add Another Serving Line

A new stainless-steel top on an old counter makes a big improvement. So may the addition of another serving line. We installed an additional serving line along one wall of the dining room of a school with a large enrollment. While this took some of the dining-room space, the loss of floor space was made up by more children being served with greater speed and efficiency. Since no plumbing or electrical lines were available and it was not practical to install them, a gas-fired table which required no plumbing was installed; it only needed the extension of an already available gas line by a few feet.

Other purchases we have made gradually are food mixers of various sizes, steam jacketed kettles, refrigerators to hold milk at the right temperature until served, ovens used just for baking, menu boards with easy-to-read letters. Even in years when we have not been financially able to buy any equipment or make any structural changes we have continued the painting program.

Difficult—but Fun!

I have described a few of the changes or improvements we have been able to accomplish over the years. Your plans must fit your own layout and equipment. It is not often that you are able to start with a piece of paper and build and equip a new cafeteria from the beginning. It is more difficult to make improvements on what you already have. However, if you make a plan and then work on it you can have the fun of seeing your dreams come true. You are missing something if you do not at least make the try.

The following free bulletins contain practical ideas:

From The University of the State of New York, State Department of Education, Division of School Buildings and Grounds, Albany 1, New York:

1. Planning the School Lunchroom, 1949, 21 pages.

2. Designing the Central School Plant as a Community Center, Reprinted 1950, 10 pages.

From U. S. Department of Agriculture, Information Branch, Production and Marketing Administration, Washington 25, D. C.:

1. Small Equipment for the School Lunch, PA-59, 2 pages.

2. Planning and Equipping School Lunchrooms, PA-60, 19 pages.

3. Increasing the Efficiency of the School Lunch Kitchen, PA-61, 23 pages.

4. Planning the School Lunchroom, 9 pages.

For more facts use Inquiry Card, 98-12N



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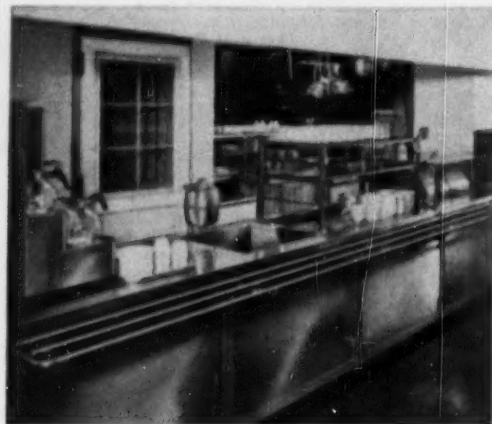
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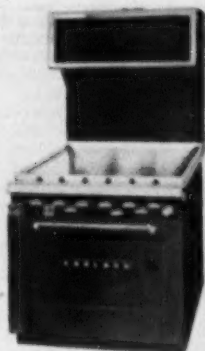
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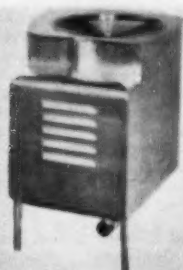
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Use the SCHOOL MANAGEMENT coupon on page 29 or the Inquiry Card. Indicate key number of item on which you wish to receive further information.



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This new unit has a fine grinder type disposer. This shreds the scraps, saturates them with water, and then discharges the mixture into the sewer. . . . Use the Inquiry Card or write to Salvajector Company, Dept. SM-438N, 118 Southwest Boulevard, Kansas City, Missouri.

Plastic Water Pitcher SM-436N

Water will stay cold a long time in this lightweight plastic water pitcher, for there is no outside condensation. When ice is used, ice-lock lips hold it inside. Handy ball-shape design makes this 2-quart pitcher easy to handle. Composition

is of durable plastic that resists breakage and withstands hard wear and abuse. A variety of colors is available. . . . Use the Inquiry Card or write to Bolta Company, Dept. SM-436N, Lawrence, Massachusetts.



Pupils Accomplish Recreation Miracle

THE combined efforts of students, parents, teachers, and the board of education have converted room B-5 at White Plains High School into a newly decorated, spanking clean student activities room. The job, originally estimated at \$12,000, required a cash outlay of only \$1,500.

The story, as told in the White Plains Reporter Dispatch by Evelyn Hart, is

one of determination on the part of the students to get an activities room. The board of education just couldn't allot the estimated sum, and the matter was always dropped. But the teen-agers themselves took the initiative and proposed to the administration a plan of their own. They would do all the cleaning, painting, furnishing, and decorating if permission were granted, they pledged.

Their offer was accepted. A group of about 150 students went to work under the supervision of Assistant Superintendent Francis C. Buras. One group cleaned and scrubbed the quarters, another painted the walls and ceilings, and another collected furniture. All the chairs, tables, desks, pictures, and lamps that needed renovating were repaired and painted by a fourth group.

A PTA committee assumed responsibility for draperies and slip covers, and

For more facts use Inquiry Card, SM-14N

FREEZERS GO TO SCHOOL

Through home freezing instruction,
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Because the home freezer has already brought an entirely new conception of meal planning to thousands of American homes, many schools are now using it in the teaching of meal planning to home economics students.

This modern appliance helps teachers in the instruction of both planning and serving complete meals within the limits of a class period, and in teaching students modern food preservation methods.

One high school in California, for example, views such instruction as essential to keeping up with modern living. There the girls do the actual work of preparing, wrapping and storing both fresh foods and those left

over from class work. The foods so preserved are later used by the students in the planning of complete meals.

A home freezer adds new interest and practical value to instruction in food buying, preparation and preservation, kitchen planning, home management and food budgeting.

Home economics teachers, members of school boards, and other school officials may get complete information about this appliance and about how to equip their home economics departments with it, from local electric service companies, appliance sales organizations, or by writing to any of the manufacturers listed below.

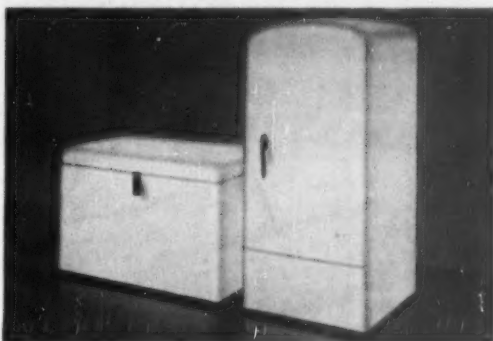


Informative Source Book offered FREE!

To help in the teaching of home freezing, a 28-page source book—"How to Enjoy Better Meals with Less Work at Lower Cost"—is offered. This is a complete and comprehensive piece of literature, profusely illustrated, covering every phase of the modern Home Freezer and its uses. Includes fruit and vegetable freezing charts. No home economics teacher will



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YOUR NAME

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A Recreation Miracle

(Continued from page 17)

art students are creating a mural to decorate one long wall of the lounge. The board of education provided the tile flooring, and arranged for partitioning of the corridor where Ping-pong tables and other games will be set up. The board also contributed the kitchen unit across from the lounge, says Miss Hart.

A steering committee has been or-

ganized to determine the uses of the lounge. It includes students, faculty representatives, PTA members, and the principal. No smoking will be allowed and the quarters will be supervised at all times. From three to four every school day the rooms will be open to all students. A juke box has been installed and refreshments can be purchased.

And that's not all. The students of White Plains High School have great plans afoot for the use of their activities

room. They worked hard to achieve it, and they are going to enjoy it!

HIGH-SCHOOL students went the "apple for the teacher" tradition one better in Peoria, Illinois, where there was a school deficit. They wanted to do something nice for their teachers, so they built and furnished a four-room bungalow. The money made from sale of the bungalow at auction was then applied to the teachers' salaries.

CHECK LIST OF NEW PUBLICATIONS

Use the school management coupon on page 29 or the Inquiry Card. Indicate the number of items on which you wish to receive further information.

Construction and Plant

Color Planning School Interiors. By Harold D. Hynds and Lester Baker. Bureau of Plant Operation and Maintenance, Board of Education of the City of New York, Dept. SM-200N, 110 Livingston St. Brooklyn, New York. 31 pages. \$3.

The authors are, respectively, the superintendent of the Bureau of Plant Operation and Maintenance in New York City's schools and a color specialist. Their basic premise is that a planned and orderly use of color can contribute to a better environment for learning. They set down general principles to be followed when selecting classroom colors. Five sets of standard colors adopted for New York City's schools, and the combinations in which they can be used, are discussed. Special colors and safety code colors are also recommended for specific uses not served by the standard colors. Paint chips of every color the authors suggest are included, as is a handy color record chart any school can use for easy reference.

Planning School Library Quarters: A Functional Approach. By Sub-Committee on Library Service to Schools Planning Board of Illinois Library Association, Mildred L. Nickel, Chairman. American Library Association, Dept. SM-201N, 50 East Huron St. Chicago 11, Ill. 53 pages. \$1.50.

Can a classroom be converted to a library? What should an ideal school library look like? Should custom-built furniture be purchased or can local carpenters be relied on to make library furniture? These are just a few of the practical questions this pamphlet tries to answer for administrators, librarians, and architects who are planning school libraries. Lighting, sound control, and color are all dealt with, and there are many suggestions for making the library both attractive and functional.

Indiana and Midwest School Building Planning Conference: Proceedings. Bulletin of the School of Education, Indiana University. Published by the Division of Research and Field Services, Indiana University. For sale by the Indiana University Bookstore, Dept. SM-202N, Bloomington, Indiana. 72 pages. \$1.

Contains problems and solutions discussed at the conference.

For Administrators

High-School Driver Education: Policies and Recommendations. National Education Association, Dept. SM-206N, 1201 Sixteenth St. N. W. Washington 6, D. C. 80 pages. 50¢.

Guiding policies and recommendations for the promotion of sound driver education programs, developed at the National Conference on High-School Driver Education, are reported here. Some of the topics covered are: the place of driver education in the high-school curriculum, instructional planning, organization and administration, teacher qualifications, preparation and certification, and evaluation and research.

UNESCO Today. UNESCO Relations Staff, Department of State, Dept. SM-207N, Washington 25, D. C. 16 pages. Free.

The first section emphasizes the international aspects of the organization. The second section, dealing with the work

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For more facts use Inquiry Card. SM-13N

For more facts use Inquiry Card. SM-16N

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of the National Commission, reports the growth of the UNESCO movement in the United States.

Research Committee Report on After School Use of Buildings. Association of School Business Officials, Dept. SM-211N, 306 East Lovell St. Kalamazoo 5, Mich. 64 pages. \$1.50.

Here are the answers to a questionnaire on problems connected with after school use of buildings, prepared by the Research Committee and sent to 100 school systems. The 15 questions included requests for information about rental fees, details of administration, control of social programs, rentals to churches, special rates for charities, and many other vexing problems that confront the administrator. The 56 answers received are compiled in table form. Sample rental policies and forms used in a number of school systems are also included.

The School Board Member in Action. Prepared jointly by the American Association of School Administrators and the National School Boards Association. AASA, Dept. SM-208N, 1201 Sixteenth St. N. W. Washington 6, D. C. 25¢. Discount for quantity orders.

Designed to supplement publications prepared by state associations of school boards and state departments of education. Outlines the board members' responsibilities and relationships to the superintendent, the teacher, the pupil, and the community.

Cornerstones of Religious Freedom in America. Edited, with introduction and interpretations, by Joseph L. Blau. The Beacon Press, Dept. SM-209N, 25 Beacon St. Boston 8, Massachusetts. 250 pages. \$3.

American champions of liberty in different eras, such as William Penn, Thomas Jefferson, and Felix Frankfurter, state what freedom of religion or one of its constituent beliefs meant to them. The chapters on keeping religion out of public schools, the fight against released time, and building the wall of separation will be of special interest to educators.

Freedom in Education. By Elizabeth R. Fern. Lear Publishers, Inc. Dept. SM-213N, 105 East 15 St. New York, New York. 203 pages. \$2.75.

The story of a pioneer American child educator's contribution to the development of the free and creative personality.

College Admission

AMERICAN Council on Education. Dept. SM-N, 744 Jackson Pl. N.W. Washington 6, D. C. issues two books on discrimination in college admission. Secondary-school and college administrators, college admission officers, counselors, parents, and students will find them of constructive help.

On Getting into College. This study was made for the Committee on Discriminations in College Admissions. Factors affecting admission, such as father's occupation, student's sex, rank in scholarship, extracurricular activities, religion, and many others, are discussed. 100 pages. \$1. SM-214N.

Factors Affecting the Admission of High-School Seniors to College. The statistical material on which the above book is based is contained in this supplement. 400 pages. \$3.50. SM-215N.

ANTI-DEFAMATION League of B'nai B'rith. Dept. SM-N, 212 Fifth Ave. New York 10, New York, offers several leaflets on discrimination in college admissions:

Religion and Race: Barriers to College? By Dr. A. C. Ivy and Irwin Ross. Public Affairs Committee Pamphlet No.

153, 32 pages. 20¢. (Discount for quantity orders.) Based on impartial studies made by the American Council on Education and several state agencies, this pamphlet shows the disadvantages faced by Jewish, Catholic, and Negro students in gaining admission to colleges of their choice. SM-236N.

Ten Good Reasons. 11 pages. 5¢. Presents the answers to 10 arguments in favor of discrimination in college admissions. SM-237N.

Program Aids. 18 pages. 10¢. Designed for use at group meetings, this pamphlet contains playlets and case studies to stimulate discussion on the problem. SM-238N.

Crack the Quota System. 4 pages. Free. A flyer written to stimulate action against the quota system now in use in many colleges. SM-239N.

Mission for Democracy. By Morton Pomeroy. 4 pages. Free. Reprinted from the *Woman's Press*. This is an article

that outlines possible actions that will bring about the elimination of such discrimination. SM-240N.

School Lunchroom

The Industrial Cafeteria and Restaurant Workers Manual. By Milton A. Rosenfeld. National Foreman's Institute, Inc. Dept. SM-228N, New London, Connecticut. 107 pages. \$2.

Even an experienced school cafeteria worker will find new and valuable in-

For more facts use Inquiry Card. SM-17N

Which type of Wear-Ever utensil meets your needs best?









AVAILABLE in 12 sizes, 10 qt. to 12 qt., 12 qt. to 12 qt., 12 qt. to 12 qt., 12 qt. to 12 qt., 12 qt. to 12 qt., 12 qt. to 12 qt., 12 qt. to 12 qt., 12 qt. to 12 qt., 12 qt. to 12 qt., 12 qt. to 12 qt., 12 qt. to 12 qt., 12 qt. to 12 qt.

Wear-Ever Aluminum works better in your kitchen. It conducts heat fast and evenly for economical, uniform cooking results. It is relatively light to handle. It is made from extra hard aluminum alloy with great resistance to gouging and denting. Rounded,

spoon-fitting corners enable all contents to be used; make stirring and cleaning easier. For further information see your supply house representative or mail coupon today to: The Aluminum Cooking Utensil Co., 4806 Wear-Ever Bldg., New Kensington, Pa.



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Please send me further information about your line of

☐ Heavy Duty Utensils ☐ Double Bottom
☐ Semi-Heavy ☐ Steam Jacketed Kettles

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WITH _____

ADDRESS _____

CITY _____ STATE _____

Check List of New Publications

(Continued from page 19)

Information here. Hints on personal cleanliness, accidents, care of dishes and silver, how to prepare a simple recipe, and food values are only a few of the subjects covered.

School Lunch Recipes for 25 and 50. Available from your State Department of Education or the Information Branch.

Dept. SM-227N, Production and Marketing Administration, U. S. Department of Agriculture, Washington 25 D. C. 47 pages. Free.

Adapted for use in the smaller school lunchrooms, these recipes can be cut apart and mounted on cards for filing. Information on weighing and measuring, serving uniform portions, and cooking

with commodities such as dried whole eggs, non-fat dry milk, and fish, is also given.

Meat and Meat Foods. By Lloyd B. Jensen. Ronald Press Company, Dept. SM-229N, 15 East 26 St. New York 10. New York. 218 pages. \$3.75.

School lunchroom supervisors and home economics teachers will be interested in the nontechnical explanation of processing and preserving meat from the

plant to the consumer. The processes explained include every stage of operation from correct chilling of fresh meat in the plant to safe holding conditions for prepared food in the kitchen.

Audio-Visual

Educator's Guide to Free Slidefilms. Compiled by Mary Foley Horkheimer and John W. Diffor. Educators Progress Service, Dept. SM-221N, Randolph, Wisconsin. 114 pages. \$3.

Lists 385 slidefilms categorized according to subject.

Setting Up Your Audio-Visual Education Program. Prepared by the Audio-Visual Education Association of California, Dept. SM-204N, Stanford University Press, Stanford, California. 34 pages. Single copies, \$1. Special rates for school orders.

A handbook that offers concrete suggestions on how to get a good audio-visual program started. Aimed at principals, it discusses organizing the visual-aids program, equipment and facilities, and in-service teacher education. It is written in question and answer form, and is profusely illustrated with pictures and cartoons.

The Information Film. By Gloria Waldron. Columbia University Press, Dept. SM-205N, Box 677, 2960 Broadway, New York 27, New York. 281 pages. \$3.75.

Records the results of a study sponsored jointly by the Public Library Inquiry and the Twentieth Century Fund. Presents useful suggestions for improving the quality and enlarging the supply of adult information films. Describes and evaluates the actualities of present-day production and distribution. Tells how, and by whom, information films are made, distributed, and used. Describes some of the problems and failures of the medium.

A Beginner's Glossary for Audio-Visual Aids. Filmstrip Distributors, Dept. SM-203N, 2550 University Ave. Madison 5, Wis. 16 pages. 25¢.

A glossary of the most commonly used audio-visual terms written expressly for the novice in the field. Many of the explanations are illustrated with helpful line drawings.

New Government Publications

Office of Education publications listed below are available from Superintendent of Documents, Government Printing Office, Washington 25, D. C. Enclose coin. Stamps not acceptable.

Organization and Supervision of Elementary Education in 100 Cities. Bulletin 1949, No. 11. By Effie G. Bathurst, Mary D. Davis, Hazel Gabbard, Helen K. Mackintosh, and Don S. Patterson. 84 pages. 25¢.

The full report of a study made by staff members of the Division of Elementary Education to help answer questions frequently asked about elementary school organization and supervision.

Improving School Custodial Service. Bulletin 1949, No. 13. By N. E. Viles. 32 pages. 15¢.

Some of the basic principles and procedures involved in school plant care, and suggestions for improving training facilities for custodians.

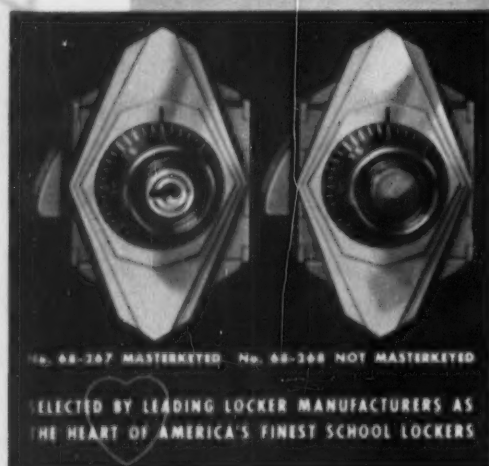
State Certification Requirements for Secondary School Teachers of Health Education and Physical Education and for Athletic Coaches. Bulletin 1949, No. 16. By Frank S. Stafford. 33 pages. 15¢.

Requirements for health and physical education teachers and athletic coaches are explained state by state. They are also summarized in convenient tables.

For more facts use Inquiry Card. SM-18N

For more facts use Inquiry Card. SM-19N

they're **TRUSTWORTHY**
they're **LONG LASTING**
they're **NATIONAL LOCKS**

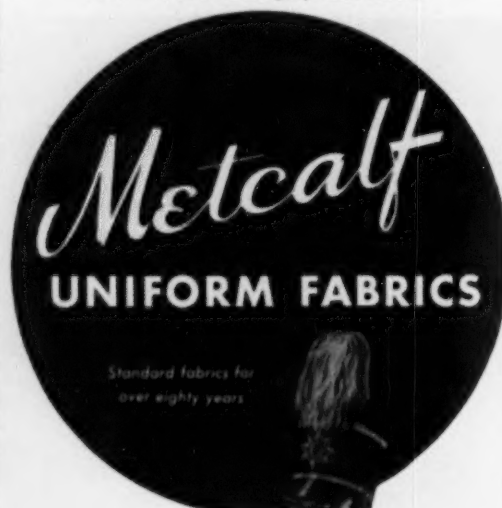


NATIONAL LOCK
Built-In Combination Locks

Because locks are so important to the security of locker contents, it's mighty important that you pay specific attention to this vital feature. When you find NATIONAL LOCKS built into the brand of lockers you are considering, then rest assured that there is none better. • These outstanding locks offer three number dialing, thousands of dial settings, Zinc Plated bolt and box, black baked enamel dial with white gradations and a great deal more. • In looking for shackle locks or laboratory and vocational equipment locks, too, look to NATIONAL LOCK for the very finest.



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suited for service, tailor-
ing and appearance.
Cloths that stand up, in
colors that stand out.
Sample brochure upon
request.



METCALFE BROS. & CO.
45 EAST 17th STREET, NEW YORK, N. Y.

CHECK LIST OF NEW AUDIO-VISUAL AIDS

Use the SCHOOL MANAGEMENT coupon on page 29 or the Inquiry Card. Indicate key number of item on which you wish to receive further information.

Educational Films

Prices subject to change without notice. In some cases rentals vary. Where true, the word "apply" is used. Send to distributor for rates. Where films are sent free, except for transportation charges, the word "loan" is used. All films are 16 mm. unless otherwise noted.



Young heroine of film "Last Date" cries in her room after auto smashup

SM-340N—Last Date. 20 min. Loan. Lumbermens Mutual Casualty Company, Dept. SM-340N, Mutual Insurance Building, Chicago 40, Illinois.

The tragic consequences of reckless driving by irresponsible youngsters are graphically portrayed in this film about four teen-agers. It shows how their lives were affected because one boy drove his "hot-rod" without regard for any of the safety rules. The film is continuously engrossing; high-school students served as consultants while it was in production to see that it did not become too "preachy."

INTERNATIONAL Film Foundation, Inc. Dept. SM-N, 1600 Broadway, New York 19, New York, offers two films on the Orient that will be of interest in social studies classes.

Japanese Family. 23 min. Sale—\$125. Rental—apply to film libraries. This film follows the daily routine of a post-war Japanese family of silk-weavers. You see the adults working the hand operated looms. You sit in on a sales conference with the head of the family, watch the mother and aunt preparing dinner, and the children doing their homework after dinner. The family also prepares for celebration of the Japanese New Year. SM-301N.

Peiping Family. 21 min. Sale—\$100. Rental—apply to film libraries. This film narrates the story of a middle-class Chinese family. It includes a biology teacher, his parents, his student assistant, his wife, their children, and the family maid. Their daily struggle for the necessities of life, depicted in the routines of marketing, school, and work, are relieved by a few simple pleasures. The monkey-man pays a visit, to the delight of the children, and there is a birthday celebration for grandfather. SM-302N.

SM-304N—Naturally Yours. 19 min. Color. Loan. National Association of Ice Industries, Dept. SM-304N, 1706 L St. N. W. Washington 6, D. C.

Shows what takes place behind the scenes to make possible the variety of fresh foods found every day at the grocer's. The different growing areas of the nation are pictured, and also the methods by which their produce is packed in ice to preserve its natural freshness during shipping. The work going on in research laboratories to improve the

handling of fresh fruits and vegetables is viewed by the camera. Especially helpful in home economics classes.

SM-303N—Do You Know Switzerland's Largest City? 10 min. Sale—\$26; rental—\$1.50. Films of the Nations, Inc. Dept. SM-303N, 62 West 45 St. New York 19, New York.

The narrator acts as a quismaster as shots of a city and the surrounding countryside are viewed. Hints are given,

but not until the end of the film is the name of the city divulged. The title says only "Do You Know?" Many aspects of life and industry in Zurich are seen in this unusual picture.

SHELL Oil Co. Dept. SM-N, 80 West 50 St. New York 20, New York, offers two films of interest to general science and social studies classes. Color. Loan.

Birth of an Oil Field. 30 min. Live ac-

tion and three-dimensional animation photography are combined to dramatize the excitement of drilling a "wildcat" well. There are views of a drilling crew at work and the erection of a derrick. The film traces the course of the crude oil from the earth through the first processing steps before it is sent to the refinery. SM-307N.

Refining Oil for Energy. 22 min. This film carries on the story of what happens to the crude oil after it reaches the re-

For more facts use Inquiry Card, SM-20N

"Just a fraction of a cent per meal!"



...that's all **MELMAC®** Dinnerware costs college cafeteria!

Read the almost "unbelievable" result of a cost study on the use of MELMAC dinnerware recently conducted by the management of a New York college cafeteria.

This study is particularly significant because this cafeteria, in addition to being used as a daily luncheon room, also serves for many teas and other college functions. Plenty of opportunity for breakage!

Briefly, here's the story:

"The original order of MELMAC dinnerware was 6,356 pieces. After 10 months, an inventory showed that 1,431 pieces had been carried off, broken, or stained (roughly 1/5 of this figure was due to people "swiping" pieces). Thus:

Total Dollar Loss—\$706.74

Number of Meals Served—544,663

Cost per Meal Served—Only \$0.0013

Since our estimated yearly replacement cost with china had been \$1500-1700, this represents a cost reduction of more than 50% with MELMAC. Evidently our customers like MELMAC, too... they carried off many more pieces than they ever had of our china. But we didn't mind. The decreased breakage more than made up for the increased "swiping".

MELMAC's low breakage—important as it is—is only one advantage of this wonderful material. It is so light that it makes dish-handling easier and less tiring. It has color, beauty, luster... smooth-as-satin finish, like finest china... and it is easy, safe to wash by hand or machine.

Get in touch with your supplier. Get all the facts about MELMAC economy today.

The Fourth Edition of an informative leaflet is now available to help you get all the advantages of MELMAC dinnerware for the longest period of time.

It contains many important suggestions, including the most recent procedures for preventing tea or coffee discoloration with solutions of OZO* (Turco Products, Inc., Los Angeles, Cal.) and K.I.K.* (Maid-Easy Products Corp., Mount Vernon, N. Y.). These products, specially developed for plastic dinnerware, have demonstrated better results than those achieved with general-purpose compounds formerly recommended.

Ask your dinnerware supplier for as many of these leaflets as you would like.



AMERICAN CYANAMID COMPANY

PLASTICS DEPARTMENT

22C ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

*The above trade names are not cited to indicate brand preference. Similar compounds working on the same principles would doubtless achieve the same beneficial results. But, used as directed by the manufacturers, these solutions will remove discoloration without harming the plastic surface.

New Audio-Visual Aids

(Continued from page 21)

fiery. Easily understood diagrams show how different products are made in the roaring furnaces. SM-308N.

JOHNSON Hunt Productions, Dept. SM-N, 1133 No. Highland Ave. Hollywood 38, California, presents two films about Mexico for use in the upper elementary school social studies classes. 11

min. Sale—color, \$95; black and white, \$45.
The Pacific Coast of Mexico: Baja California. A general survey of the economic and social conditions of life on the peninsula of Lower California. The film describes the people and their fishing industry, agriculture, school system, and many other aspects of their daily living. SM-316N.

The Pacific Coast of Mexico: The Mainland. A general survey of the coastal region on the mainland from Mazatlan to Acapulco. It includes scenes of the transportation system, occupations, and daily activities of the inhabitants. SM-317N.

WURTELE Film Productions, Dept. SM-N, Post Office Box 504, Orlando, Florida, offers films on two famous carnivals that are traditions in the

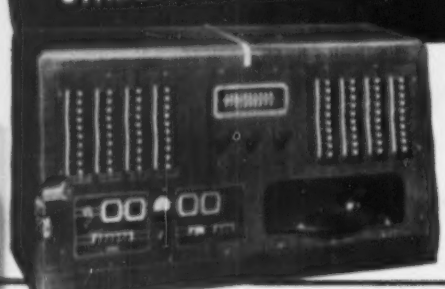
South. 1 reel. Color. Sale—\$85 each. Rental—\$3 each.

Gasparilla Carnival. This film depicts the annual invasion of Tampa, Florida, by members of "Ye Mystic Krewe of Gasparilla," followers of Jose Gaspar, the pirate chief. Scenes aboard the pirate ship and the Grand Parade through the city are climaxed by the colorful Coronation Ball, where a new king is crowned. SM-305N.

New Orleans' Mardi Gras. This celebration, world-famous for its elaborate floats, maskers, and parades, is the gayest of all carnivals. Night parades, lighted only by flambeaux in the ancient tradition, and beautiful floats make a lavish spectacle. SM-306N.

For more facts use Inquiry Card, SM-21N

Simplifies Administration Stimulates Learning



Rauland Centralized S81 Radio-Sound System

Complete Program Facilities for Maximum Teaching and Administrative Benefits

The new RAULAND S81 Centralized Sound System provides complete program facilities (Radio, Phonograph, Microphone and Intercommunication) to serve the modern school. Here is the means for effective administrative control of your entire school plant from a single, central point. Permits instant communication with any or all classrooms; provides emergency paging and call (for fire drills, accidents, etc.). Unsurpassed as an educational aid, the S81 provides selected FM and AM radio broadcasts for instructive purposes; plays and distributes recordings and transcriptions; makes possible broadcasts of school dramatic programs and activities; serves effectively as an aid for specialized instruction in musical appreciation, languages, and dramatics. Versatile in performance, dependably proved in operation, the RAULAND S81 Centralized Sound System is priced within the budget of the average school.

Make sure your Sound System will have these features....

- **DUAL CHANNEL FACILITIES.** One Channel permits distribution of radio, phonograph or microphone programs to any selected room or to all rooms, while second Channel simultaneously permits intercommunication with any room as desired.
- **FM-AM Radio.** Covers AM (Standard Broadcast), and full FM band (including civic educational frequencies).
- **Three-Speed Phonograph.** Plays records of ALL speeds and sizes, including 16-inch educational transcriptions.
- **Permits distribution of microphone program from any desired location, as well as from central control cabinet.**
- **Powerful paging coverage.** Has Emergency Call feature.
- **Economical installation—uses now balance line wiring to speakers; no extra shielding is required.**

The RAULAND S81 System is designed to remain modern for years. It offers unusual flexibility, superb tone quality and trouble-free dependability. Let us show you, without obligation, how RAULAND Centralized Sound can benefit your school. Write us today for complete details.

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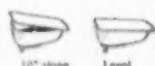
For more facts use Inquiry Card, SM-22N



Desk top at 20° slope for reading, writing, drawing

American-Universal "Ten-Twenty" Desk

*This Key to the Co-ordinated Classroom
may well be the Key to His Future*



A POSITION
FOR EVERY TASK



FORE AND AFT
SEAT ADJUSTMENT



SEAT SWIVELS
45° EITHER WAY



SANITARY ONE-PIECE
DOOR BOX



PLYWOOD EXCELS
"SOLID" WOOD

WHEN postural and visual environment is right, children see better, sit better, and learn more easily. This new American Universal "Ten-Twenty" Desk meets the requirements for completely co-ordinated classroom environment.

It is the only desk that offers a choice of three approved top positions. It is also the only desk with automatic fore-and-aft seat adjustment, approaching perfect focal adjustment for all tasks on desk-top. Its natural-wood finish with 30 to 35% reflectance conforms with accepted brightness ratios, for further visual comfort. Other features include the 45° seat swivel for added freedom of movement, and convenience. Seat and book-box are adjustable in height.

Write for full-color brochure describing the "Ten-Twenty" Desk in complete detail.

FREE BOOKLETS: Write for "The Coordinated Classroom," by Dorell Boyd Harmon. Also "The Case for the Ten-Twenty."



American Seating Company

WORLD'S LEADER IN PUBLIC SEATING

Grand Rapids 2, Michigan. Branch Offices and Distributors in Principal Cities
Manufacturers of School, Auditorium, Theatre, Church, Transportation, Stadium Seating, and Folding Chairs

GATEWAY FILMS, Inc. Dept. SM-N, 40 Fremont St. San Francisco 5, Calif. presents three films on swimming, for health education classes. 1 reel. Color. Rental—\$2 each.

Swimming for Beginners. This film is useful for the beginning swimmer of any age. It opens with a brief history of swimming strokes from the dog paddle to the American crawl. Then it shows how a beginner is taught the fundamentals of leg action, arm action, breathing, rhythm, and coordination. Each action is clearly demonstrated by stop-frame diagrams. SM-309N.

Advanced Swimming. For the swimmer who wants to gain speed and power. Underwater photography and stop-frame diagrams expose common faults and show how to correct them. SM-310N.

Diving Fundamentals. Shows the correct way to do the front and back dive. Usual errors in execution are revealed by underwater photography and stop-frame diagrams. SM-311N.

SM-312N—Oklahoma Heritage. 30 min. Loan. Oklahoma State Planning and Resources Board, Dept. SM-312N, State Capitol, Oklahoma City, Oklahoma.

A story of the growth and development of Oklahoma during the past 50 years.

SM-315N—Your Career in Aviation. 11 min. Sale—color, \$90; black and white, \$50. Rental—color, \$3.50; black and white, \$2. Flory Films, Inc. Dept. SM-315N, 303 East 71 St. New York 21, New York.

A survey of the operations of a typical commercial airline. Detailed attention is given to careers in aviation for young people. Types of jobs, salary ranges, and educational and technical qualifications required are all discussed.

MARCH OF TIME Forum Films, Dept. SM-N, 360 Lexington Ave. New York 17, New York, offers two films suitable for high-school social studies classes. Sale—\$55. Rental—available from film libraries.

Battle for Bread. 23 min. Produced under the supervision of the United Nations, this film shows how the Food and Agriculture Organization is carrying on

For more facts use Inquiry Card, SM-23N

SCHOOL DOOR- PLATES

PRINCIPAL

In Etched Brass 7 1/2" x 1 1/4" ONLY 75c ea.

Large polished brass letters on deeply etched black ground. Easy to read, durable and dignified in appearance. The each in any quantity. Hundreds of titles for schools. Write for list. A few titles listed below.

1st Grade—2nd Grade—etc. to 12th, 1st-2nd Grade to 7th-8th Grade, Room A—Room B—etc. to Room K. Assembly Room—Auditorium—Boys' Room—Licker Room—Boys' Shower—Cafeteria—Chemistry—Class Room—Domestic Science—Gardens—Girls—Gym—Locker Room—East—English—Gymnasium—Kindergarten—Principal—Private—etc. etc. Immediate shipment. ORDER FROM YOUR SCHOOL SUPPLY DEALER or write direct.

THE HOFF METALCRAFT
234 St. 4th Street Minneapolis 5, Minn.

the fight against hunger. The struggle to double the world's output of food, which is technically possible, is described. But only by working together can the world win this battle. SM-313N.

India, Asia's New Voice. 17 min. Some of the basic problems that confront the fledgling Indian government are discussed. New industry, power projects, public health programs, and modernization of agricultural methods are all new endeavors of the Indian people. The life of a high-caste Brahman is contrasted to that of the lowly Untouchable. The ways in which the new nation is working to achieve a truly democratic state are examined. SM-314N.

HEIDENKAMP Nature Pictures. Dept. SM-N, 538 Glen Arden Drive, Pittsburgh, Pennsylvania, offers several units in the "Birds of North America" series. 4 min. each. Silent, color. Sale—\$20 each.

Ruby-throated Hummingbird (nesting). SM-319N.

Kingbird, Acadian Flycatcher, Wood Pewee. SM-320N.

Phoebe, Crested Flycatcher. SM-321N.

Prairie Horned Lark, Purple Martin, Barn Swallow. SM-322N.

Northern Cliff Swallow. SM-323N.

Tufted Titmouse, Black-capped Chickadee, White-breasted Nuthatch. SM-324N.

TEACHING Film Custodians, Inc. Dept. SM-N, 25 West 43 St. New York 18, New York, offers three black-and-white, three-reel excerpted versions of feature films for American history and social studies classes. Three-year license—\$30 per reel (\$90 per film). Teacher's guide included. Rental—available from film libraries.

Driven Westward. Dramatizes the courage and resourcefulness of the early pioneers whose quest for new opportunities opened the western wilderness. SM-325N.

Our Audio-Visual Committee

THIS listing of educational films was compiled and edited by Jane Bonnevillie with the cooperation of the following committee:

Celia Anderson,
New York University Film Library

Louise Condit,
Metropolitan Junior Museum

Leslie E. Frye,
Director, Division of Visual Education,
Cleveland Board of Education

Carolyn Guss,
Audio-Visual Center,
Indiana University

Nelle Lee Jenkinson,
Director, Division of Audio-Visual Education,
St. Louis Board of Education

Herbert R. Jensen,
Executive Secretary, NEA Department
of Visual Instruction

Charles E. Luminati,
Coordinator of Audio-Visual Instruction,
Great Neck, New York

Franklin T. Mathewson,
Supervisor, Audio-Visual Education,
White Plains, New York, Board of Education

Dr. Grace Ramsey,
American Museum of Natural History

Mrs. Esther Speyer,
Chairman, Motion Picture Committee,
United Parents Association

Leila Trulinger,
Director, Bureau of Audio-Visual Instruction,
University of Colorado

Thurmon White,
Director, Visual Instruction,
University of Oklahoma

Drums Along the Mohawk. Emphasizes pioneer life in the Revolutionary period. SM-326N.

Winning Our Independence. Matthew Howard personifies the hardy colonials who created their homes and fortunes out of the wilderness and resented the imposition of unjust taxes by the mother country. SM-327N.

SM-328N—Elementary Classic Ballet Technique. 2 parts. 1 reel each.

Black and white. Sale—\$28 per reel; rental—\$2.80 per reel. D. D. Livingston, Films of the Arts and Sciences, Dept. SM-328N, 220 Clinton St., New York 2, New York. Produced by the Ballet Academy of New York.

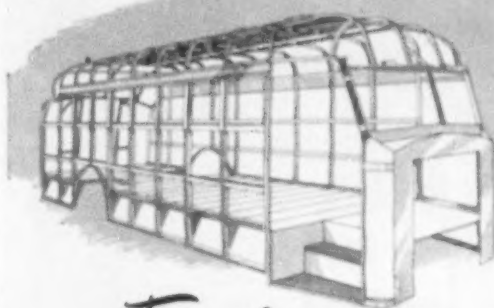
Covers barre exercises from first plies to battements jetes, for a complete foundation in classic Russian ballet methods. Exercises are demonstrated by students aged 10 to 12, supervised by Alexandra Warenaik.

SM-329N—Northern Rampart. 16 min. Three-year license, \$90. RKO Radio Pictures, Inc. Dept. SM-329N, 16-mm. Division, 1270 Avenue of the Americas, New York 20, New York.

A story of America's last frontier—Alaska. Spotlights this territory of plank main streets, totem poles, ghost towns, glaciers, and forests. Shows how farms are carved out of the wilderness and how fortunes are wrested from the waters and forests. (Turn page)

For more facts use Inquiry Card SM-34N

A CRADLE OF STEEL FROM WHEEL TO WHEEL



Oneida SAFETY School Bus Bodies

For the safety of your children



Yes, for the safety of your children you want the *safest* school bus body that's manufactured. Here's one sure way of getting it—specify an *Oneida Safety School Bus Body*! For only Oneida features the exclusive "Cradle of Steel from Wheel to Wheel" frame that is built to withstand heavy impacts from all directions . . . to assure greater protection against body failure due to stress, strain or torsional twist. Oneida Safety School Bus Bodies literally

shield their passengers from road hazards.

For the security of your taxpayers' dollar, you want *durability*. Oneida Safety School Bus Bodies are a wise investment. They are *endurance-built* to give years of dependable, daily service with a minimum of maintenance cost.

What's more, you can specify Oneida Safety School Bus Bodies on the chassis of your choice. Oneida bodies are designed and engineered to fit *every* leading bus chassis make.



AMERICA'S MOST FAMOUS SCHOOL BUS BODY—

An Oneida Safety School Bus Body was on the *first* complete school bus to meet or exceed, in every detail, the new National School Bus Standards adopted by the National Education Association.

Countless safety features—from the soft rubber protective edges on the extra-wide entrance door to the built-in guards in the seat handholds—distinguish Oneida's thoughtful provision for the complete comfort and safety of passengers.

Oneida Safety School Bus Bodies—ranging in size from 16 to 66 passengers—are available in the exact load capacity to meet your particular requirements. Get the added safety, comfort and durability that make Oneida "America's Most Famous School Bus Body."

Specify Oneida on the chassis of your choice! For all the reasons why Oneida is your safest buy, contact your local Oneida distributor or write to us direct today.

School Bus Sales Division
Oneida Products Corporation
CANASTOTA, NEW YORK

Every
Feature
a Safety
Feature



New Audio-Visual Aids

(Continued from page 23)

CORONET Instructional Films, Dept. SM-N, Coronet Building, Chicago 1, Illinois, offers two films for mathematics classes on the junior and senior high-school level. 1 reel each. Sale—each, \$90 color; \$45 black and white. Teacher's guide included. Rental—available from film libraries.

The Meaning of Pi. Develops an un-

derstanding of this important mathematical ratio. Outlines a study procedure by which the numerical value of pi can be checked and reviewed. A closing sequence describes the discovery of pi as one of the great advances in history. SM-330N.

How to Find the Answer (Mathematical Problem Solving). Makes an im-

portant contribution to clear thinking, for a systematic attack of mathematical problems, both in and out of school, is encouraged. Offers students an excellent exercise that can be utilized in solving problems in any subject. SM-331N.

SM-332N—Castle of the Angels. 13 min. Sale—\$60. Official Films, Inc. Dept. SM-332N, 25 West 45 St. New York 19, New York.

Shows the great halls, grim dungeons,

music rooms, impressive chapels, and private chambers of the popes in this historic Roman fortress. Works of great sculptors and painters such as Michelangelo are also included.

SM-333N—Installing Armored Cable. 27 min. Loan. Armored Cable Section, National Electrical Manufacturers Association, Dept. SM-333N, 155 East 44 St. New York 17, New York.

A step-by-step record of a simple installation job in a house under construction. Begins with the careful plans for the entire wiring system. Illustrates representative problems encountered in the average home. Suitable for vocational high schools and shop classes.

SM-334N—Mr. Bell. 30 min. Loan. Available from your local Bell Telephone business office, Dept. SM-334N.

Alexander Graham Bell goes about his affairs in Boston in the 1870's, inventing the telephone and teaching the deaf. After the successful culmination of his dream he continues his work in helping the deaf, and interests himself in aviation and the founding of the National Geographic magazine. The film follows his career into the 1920's.

SM-335N—Crimes of Carelessness. 11 min. Black and white. Loan. The National Board of Fire Underwriters, Dept. SM-335N, 85 John St. New York 7, New York. Available for sale—\$18, from Audio Productions, Inc. Dept. SM-335N, 630 Ninth Ave. New York 19, New York.

Depicts the appalling loss of life and property which results from preventable fires. Contains spectacular pictures of actual fires. Suitable for upper elementary, junior, and senior high-school levels.

SM-336N—Mechanized Record Filing. 27 min. Sound. Loan. General Fireproofing Co. Dept. SM-336N, Youngstown 1, Ohio.

Tells the story of a typical company that didn't have enough room to house all of its filing records. Illustrates how office costs can be reduced and efficiency improved through the use of mechanized filing cabinets. For business courses.

SM-337N—Operations Wildlife. 35 min. Sale—color \$200; black and white \$110. Film Production Service, Dept. SM-337N, State Board of Education, Richmond 16, Virginia.

Covers many pertinent details about the birds and animals of Virginia, such as size, food, protection, and mating. Points out the values of wildlife to man. Good for nature study, biology, and Virginia geography classes from the upper elementary grades through senior high school.

SM-338N—Role Playing in Human Relations Training. 25 min. Sale—\$60. Division of Adult Education Service, NEA, Dept. SM-338N, 1201 Sixteenth St. N. W. Washington 6, D. C.

Shows how to use the new method of training called "role playing." Demon-

- PRINCIPALS
- SUPERINTENDENTS
- GUIDANCE DIRECTORS

If you find it difficult to recommend a boarding school to meet the needs of a specific student, we would be glad to help you. The staff of the School Bureau has visited all types of schools throughout the country. Write us fully giving all pertinent information. We will select schools meeting the requirements and have catalogs sent to you.

School Bureau, Parents' Magazine
52 Vanderbilt Ave., New York 17, N. Y.

For more facts use Inquiry Card. SM-27N

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Yet
Easily Reached Safely
with BAKER SCAFFOLDS



It's easy to reach those tough off-the-floor jobs—such as the above gymnasium ceiling—with Baker Scaffolds... they handle any assignment with safety, speed and economy. That's why you, too, will find Baker Scaffolds to be one of your most valuable labor and money saving pieces of equipment. Look at these outstanding advantages:

Platforms Adjustable Every 3 Inches—men can always stand at a comfortable distance from their work.

No "X-Brace" Construction—they span desks, furniture and equipment.

Easily Stacked for Height—simply built up unit by unit to reach high places... also arranged to cover large floor areas.

Handled and Erected by One Man—they are light in weight and fit together quickly.

No Loose Parts to Become Lost—just five parts... no bolts, wing nuts or pins... complete with platform. Write today for Bulletin 491.

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Secure Seating*

STEEL FOLDING CHAIRS

Durable Steel Construction —
Light enough for easy handling —
Strong enough to support half a ton —
Unusually quiet in handling and use, due to exclusive mechanism and rubber floor contact —
Grip the floor firmly —
Perfectly balanced against tilting —
Correct posture design assures complete comfort —
Guaranteed for 10 years against breakage —

CLARIN MFG. CO. 1400 W. Harrison St., Dept. N-4
CHICAGO 24, ILL.

These are more steel folding chairs in institutional service than any other make

For more facts use Inquiry Card. SM-26N

LOW COST BLEACHERS with "Built-in" Safety Features



Easy to Erect • Fireproof • Permanent



At last, any school can have permanent seating facilities for school events... at amazing low cost. SAFWALK Bleachers are proved within the reach of even small rural schools. Larger colleges find SAFWALK ideal for stadiums, field houses and practice fields.

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Kansas City 6, Mo.

Please send me FREE catalog on SAFWALK structures and price list.

Name Title

Address

City St.

- Buried holes punched from bottom on every step and walkway provide safe, non-slip surface.
- No special tools or skill needed to assemble.
- Completely fireproof. Low Maintenance. Won't Rot.
- Can be taken down and moved.
- Size can be increased or decreased.

strates how the everyday situations involving interaction between people can, by a spontaneous enactment, be studied and improved.

Circus Day in Our Town. 15 min. Black and white. Sale—\$63. Rental—available from film libraries. Encyclopedia Britannica Films, Wilmette, Illinois.

Starts at the station with the unloading of the circus. Big wagons roll down ramps, and elephants emerge from freight cars to follow the procession through town to the circus grounds. Huge tent poles are raised on an empty lot. Further scenes show the bustling activity of the midway and the highlights of the circus in each of its three rings. For primary grades, where circus stories play a stimulating part in teaching children to read.

Filmstrips

SOCIETY for Visual Education, Inc. Dept. SM-N, 1345 West Diversy Parkway, Chicago 14, Illinois, announces two atomic energy filmstrips in color. Sale—\$6 each.

Let's Look at the Atom. 53 frames. Explains in simple language basic scientific principles of the atomic theory. SM-350N.

The Atom at Work. 50 frames. Calls attention to some of the more important peacetime applications. SM-351N.

SM-360N—How We Get Our Gas. 43 frames. Loan. Available from local gas companies, Dept. SM-360N.

The first section of this filmstrip deals with converting coal into gas and the second with manufacturing carbureted water gas from coke. The process of drilling, piping, and transmitting natural gas is explained in the third section, while piping and distribution of gas to customers is dealt with in the fourth.

SM-361N—Facts about Floor Care. 2 parts. 15 min. each. Loan. Bookings available to groups of 20 or more. Especially suitable for showing before school maintenance crews. A Johnson representative will be present at all showings to answer questions. S. C. Johnson and Son, Inc. Dept. SM-361N, Racine, Wisconsin.

Part 1 deals with maintenance operations on asphalt and rubber tile floors. Describes in detail the "do's" and "don'ts" of floor waxing and cleaning. Part 2 gives particular attention to problems encountered in the varying ages, uses, and previous methods of maintaining wood floors. There is also a special section on how to keep gymnasium floors in good shape under difficult conditions.

POPULAR Science Publishing Co. Dept. SM-N, 353 Fourth Ave. New York 10, New York, offers a series of filmstrips "Conservation Is Everybody's Business," designed for social studies and general science classes on the seventh, eighth, and ninth grade levels. Sale—set of four strips, \$24.75; individual strips, \$6.50 each.

People—Our Most Valuable Resource. SM-352N.

Saving the Soil. SM-353N.

Using Our Forests Wisely. SM-354N.

Nothing Can Live Without Water. SM-355N.



Scene from one of the four filmstrips in Popular Science series on conservation

SM-356N—National Gallery of Art, Strip-Film No. 1. Black and white. Sale—\$6. Educational Department, National Gallery of Art, Dept. SM-356N, Washington 25, D. C.

Contains 300 representative pictures from the Gallery collection of world-famous paintings.

SM-357N—The Musical Forest. Color. Sale—set of three strips, \$16.50. Young America Films, Inc. Dept. SM-357N,

18 East 41 St. New York 17, New York. Presents a fantasy about a magical forest and the interesting animals who live in it. Tells a story of how musical scales might have developed, including the staff lines, notes, and bass and treble clef signs. Designed for all types of elementary and junior high-school music groups—vocal, piano, and instrument.

SM-358N—You and Your Mental Abilities. 51 frames, followed by 5-frame

quiz. \$3. Science Research Associates, Dept. SM-358N, 228 So. Wabash Ave. Chicago 4, Illinois.

Describes how mental abilities differ from person to person. Explains that an athlete may be high in "space" and "perception" but low in "word-fluency." A poet may be the reverse and a mathematician low in all of these, but high in "number" and "reasoning." Designed for high-school guidance work and teacher training. (Turn page)

For more facts use Inquiry Card. SM-28N



CHEVROLET School Bus Chassis

Top favorites across the nation!

Yes, from coast to coast school authorities choose Chevrolet school bus chassis above all the rest. These men know that Chevrolets have long enjoyed a reputation for superior performance, for superb roadability, outstanding economy and ease of handling. These advantages are combined in 1950 with new increased power and greater torque than ever . . . features that add even more value to the Chevrolet trade-mark . . . make it a buy-word for dependable service—first choice across the nation. For full details consult your Chevrolet dealer.

CHEVROLET MOTOR DIVISION, General Motors Corporation
DETROIT 2, MICHIGAN



SCHOOL BUS CHASSIS

199-INCH WHEELBASE SCHOOL BUS CHASSIS

Gross vehicle weight, 13,500 or 15,000 pounds depending on tire equipment. Capacities, 42 to 54 pupils. Chevrolet Lead-Master valve-in-head engine, 105 h.p., 193 foot-pounds torque (pulling power) at speeds governed under 35 m.p.h.

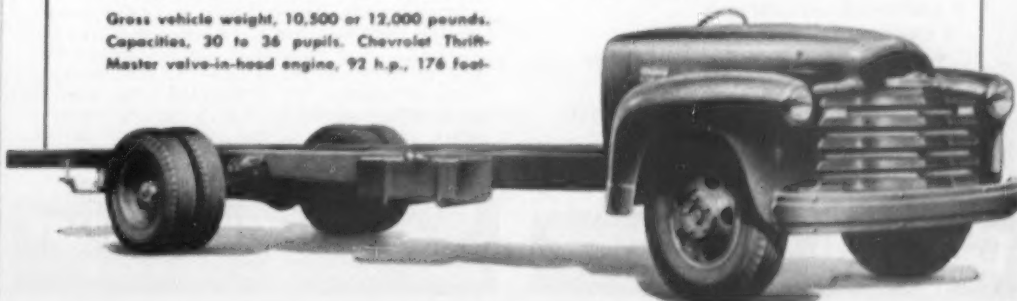
161-INCH WHEELBASE SCHOOL BUS CHASSIS

Gross vehicle weight, 10,500 or 12,000 pounds. Capacities, 30 to 36 pupils. Chevrolet Thrift-Master valve-in-head engine, 92 h.p., 176 foot-

pounds torque (pulling power) under 35 m.p.h. governed speed.

137-INCH JUNIOR SCHOOL BUS CHASSIS

Gross vehicle weight, 7600 pounds. Chevrolet Thrift-Master valve-in-head engine, 92 h.p., 176 foot-pounds torque (pulling power) under 35 m.p.h. Capacity, 16 pupils.



Free Catalogs

1949-1950 Catalog. Bailey Films, Inc. Dept. SM-375N, 2044 No. Berendo St. Hollywood 27, Calif. 16 pages.

Presents 43 films, filmstrips, and study print sets for use from primary grades through high-school and adult levels.

100 Selected 16mm. Films of the United States Government. United World

Films, Inc. Dept. SM-376N, 1445 Park Ave. New York 29, New York. 15 pages.

All the films have been released through the Office of Education and are categorized according to subject.

Brandon Film List. Brandon Films, Inc. Dept. SM-377N, 1709 Broadway, New York 19, New York. 31 pages.

A brochure listing 16-mm. nontheatrical films with evaluative comments.

Films from Britain 1949-1950. British Information Services, Dept. SM-378N, 30 Rockefeller Plaza, New York 20, New York. 14 pages.

Covers a variety of subjects including international affairs, British progress in industry, colonial development, education, science, and so on.

For more facts use Inquiry Card. SM-375N

For more facts use Inquiry Card. SM-376N



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DON'T FIGHT OVER IT!!

There are enough books for every school official to have one—if you haven't received your copy yet—just ask us for it.

The BECKLEY-CARDY SCHOOL BUYER'S GUIDE FOR 1950

Lists and prices over 1000 items for school construction and use. Not only the largest and most complete guide for school executives, but the easiest to use because of careful compilation and arrangement. Just a few subject groups:

- Classroom Seating
- Steel Lockers and Files
- Playground Equipment
- Chalkboards and Corkboards
- Chalkboard Erasers & Eraser Cleaners
- Class Room Shades & Darkening Shades
- Teaching Supplies and Material
- Supplementary Readers and Entertainment Books

A post card will do—just ask for Buyer's Guide No. 904.



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1433 INDIANA AVE. CHICAGO 14, ILL.

QUICKLY FOLDS OR UNFOLDS

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Mitchell
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tables

- MORE** seating capacity
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- MORE** for your money

Churches, schools, hotels, institutions, fraternal buildings. Convert any room into a banquet or group activity room. Clear it in minutes.

Send for folder with complete specifications.

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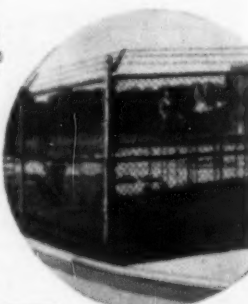
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THE STRONGEST, HANDIEST FOLDING TABLE MADE!

For more facts use Inquiry Card. SM-31N



- MAXIMUM PROTECTION 24 HOURS A DAY
- UNCLIMBABLE—SAFE
- KEEPS CHILDREN IN, TRESPASSERS OUT
- ANIMAL PROOF
- BETHANIZED WIRE—LASTS YEARS LONGER
- LOW MAINTENANCE COST. NO PAINTING
- HARMONIZES WITH BUILDINGS, PLANTINGS, ETC.
- SECURES MORE PAID ADMISSIONS
- FACILITATES HANDLING CROWDS



IT ALL ADDS UP TO ATLAS

ATLAS FENCE is ideal for schools, playgrounds, swimming pools, athletic fields, parks and private grounds. Because of the way it is manufactured and installed . . . and because of the Bethanized wire from which it is made, Atlas is the most practical fence obtainable. The Bethanized wire, with its electrolytic application of pure zinc, provides a heavy, uniform coating that adds years of service.



Installed anywhere by factory-trained crews. Write today for full information.

ATLAS FENCE COMPANY

PICKWICK & SALMON STS.

PHILADELPHIA 34, PA.

NEW AUDIO-VISUAL EQUIPMENT

Use the school MANAGEMENT column on page 29 or the Inquiry Card. Indicate by number of items on which you wish to receive further information.

Electric Rewind Units SM-445N

Fast, efficient film handling is achieved with the improved PD-1 and PD-2 power rewinds. A cooling fan is included in the motor assembly of these units, thereby reducing motor temperature rise and increasing power output. Wiring is of an extra heavy duty type.

The improved foot rheostat eliminates tendency for the control unit to creep during use. It can be set for any desired maximum rewind speed. Unit may be mounted for knee control. . . . Use the Inquiry Card or write to Neumade Products Corporation, Dept. SM-445N, 330 West 42 St. New York 18, N. Y.

Color Camera SM-446N

Of interest to schools that produce their own visual aids is the new Kodak Pony



135 camera with fine Kodak Anaston f4.5 lens. It features built-in flash synchronization. Either 20 or 36 exposure 35-mm. film can be used with this camera. When Kodachrome film is used, pictures are returned mounted in 2 x 2 Kodasides ready for projection. . . . Use the Inquiry Card or write to Eastman Kodak Company, Dept. SM-446N, Rochester 14, New York.

Projector-Strip Combination SM-449N

A "Visual Kit" combination which saves the purchaser almost \$25 is available until July 1. It includes a 300-watt S.V.E. improved model AAA-VK Tri-Purpose projector plus several filmstrips and/or slides of the customer's own choice. The projector has a new "slip-in" threading device which speeds threading and prevents scratching or tearing of film. The selection of slides and filmstrips—covering the arts, sciences, social studies—is extensive. . . . Use the Inquiry Card or write to Society for Visual Education, Inc. Dept. SM-449N, 1345 West Diversey Parkway, Chicago 14, Illinois.

Reels and Reel Cans SM-452N

Good protection for your 16 and 8-mm.

For more facts use Inquiry Card. SM-32N

FREE Catalog
BRONZE TABLETS

DESIGNS FOR EVERY NEED

Write today for free 48-page catalog. It contains 150 up-to-date designs for solid bronze tablets—see murals, name tablets, monuments, awards, etc. Ask for catalog 1.

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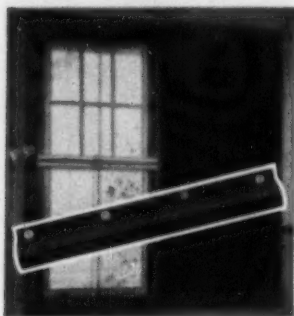
For more facts use Inquiry Card. SM-33N

Flavor Quality **Brushed ARTIST'S MATERIAL Colors**

M. GRUMRACHER Write For Free Price List

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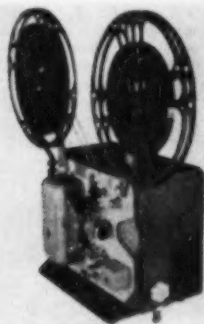
films are provided by these new steel reels and cans. Reels grip film instantly for easy, non-slip starting. They have a non-warp construction which retains alignment for perfect film projection and take-up. There are footage markings at 50-foot intervals. Cans are ribbed so they will fit into each other for stacking. Finish is grey hammertone baked-on enamel. . . . Use the Inquiry Card or write to the Brumberger Company, Inc. Dept. SM-452N, 34 34th St. Brooklyn 32, New York.



Darkening Shades SM-451N

Solve one of your audio-visual problems with the use of Portable Pakfold darkening shades. They can be moved from room to room, used when and where needed. The Draper pulley fork makes them easy to apply—with no ladder required, no screws needed.

Pakfolds are practical for extremely tall windows, and are used with two sets of pulleys and cords or in combinations for unusually wide windows. When used over a double roller shade, special clips hold the cloth close fitting and eliminate interference. When not in use, the shade is kept in a neat roll with protective cover. . . . Use the Inquiry Card or write to Luther O. Draper Shade Company, Dept. SM-451N, Spiceland, Indiana.



Motion Picture Projector SM-450N

Both sound and silent films can be shown on the Devrylite, using either AC or DC. This 1950-model, 16-mm. projector has a newly designed amplifier and soundhead which contribute fine tone quality. Through use of a new lead sulfide photocell, the film's sound track is now scanned direct. Brilliant 750-1000 watt illumination is provided. Top-mounted arms accommodate 2000-foot reels. Underwriters' Laboratories approves the machine.

There are 3 Devrylite models: a single case with built-in amplifier, built-in detachable Alnico V permanent magnet speaker, and preview screen; a dual case which includes an 8-inch loudspeaker in separate case instead of the built-in one; and a combination model with both speakers. . . . Use the Inquiry Card or write to DeVry Corporation, Dept. SM-450N, 1111 Armitage Ave. Chicago 14, Illinois.

LOCAL demand and plans for an extensive school construction program in New York City to meet the current building shortage resulted in the recent formation of a special Public Education Association committee to study modern school building needs.

Chairman of this committee is Mrs. Samuel I. Rosenman, formerly chairman of the board of the National Committee on Housing, and former director of the Urban-Land Institute. Members of the

committee include leading authorities in the fields of education, architecture, finance, construction, community planning, and recreation.

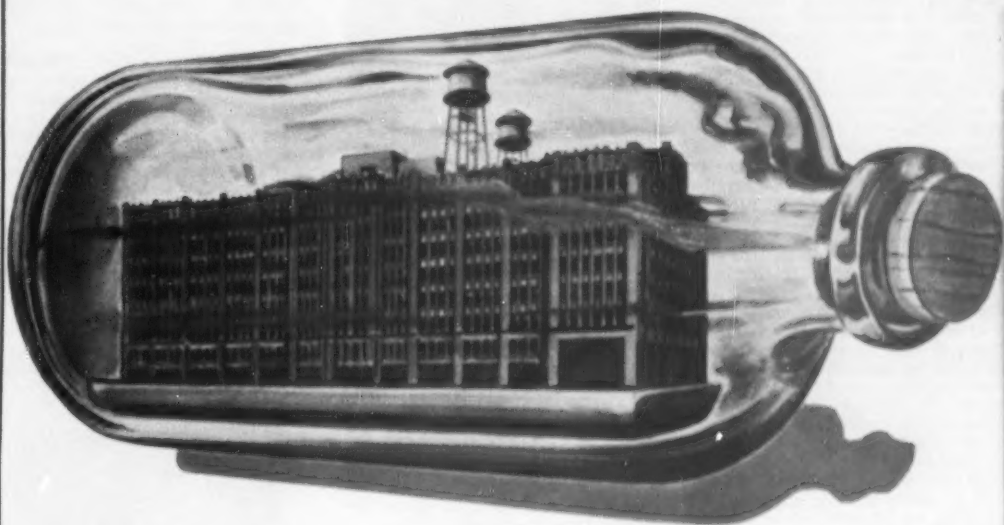
This committee will make a thorough study of the kind of school housing and equipment which can best serve the education and well-being of today's students; it will consider the rapidly growing importance of the school as a center for adult education and community activities. The committee's report and recommendations

are expected to provide authoritative guidance in the planning and design of future New York City school buildings.

NEW JERSEY had the lowest accident fatality rate of any state last year, reports the 1949 edition of "Accident Facts," published by the National Safety Council. The safest age group in the country was the 5 to 14 bracket, and girls had fewer accidents than boys.

For more facts use Inquiry Card. SM-34N

FOR BONDED WATERPROOFING



AND EXTERIOR RESTORATION

If costly damage to your school building is to be avoided, your maintenance and modernization program should start with exterior walls.

Waterproofing arrests and forestalls disintegration to plaster and other interior finishes, rusting of structural steel, steel sash, and fire escape anchors.

Over thirty years experience in waterproofing, steam cleaning, tuck-pointing, caulking and concrete restoration is available to you through our restoration methods and national service.

DELAY IS COSTLY

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Check List of SCHOOL SUPPLIES AND EQUIPMENT

NEW PRODUCTS
and news about established products
presenting the claims
made for them by their manufacturers

Consult the Coupon Page opposite. Send the Inquiry Card for further information. No charge, no obligation.



Office Duplicator SM-410N
Hear ye, office managers. The Ditto D-45 heavy-duty general office and flexible systems duplicator can handle any duplicating job, whether typed, handwritten, or drawn! It can produce 100 copies a minute, 300 to 500 per master, in 4 colors at once.

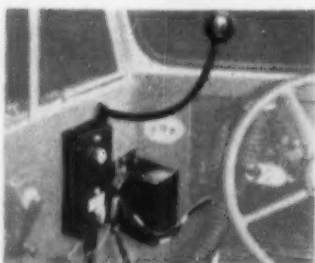
This new model has a magnetic Velvet Clutch that makes the machine barely audible in operation, and that will add years to its service life. Another innovation is a dial-controlled margin adjustment for instant, accurate register in small spaces on forms, even when the master does not register with the copy sheets. . . . Use the Inquiry Card or write to Ditto, Inc. Dept. SM-410N, Harrison at Oakley Boulevard, Chicago, Illinois.

Plastic Book Covers SM-428N
They can stand plenty of hard use, these Plasticoat book covers, and still retain their pleasing appearance. For they are made of paper coated with a tough plastic. The protection they provide for books is attractive both to educators and to the students, who sometimes sell them for fund-raising projects. Covers may carry general designs, or be imprinted with the colors and seal of any school. . . . Use the Inquiry Card or write to Glad Company, Dept. SM-428N, 1441 Hertel Ave. Buffalo, New York.

Paper Towel Dispensers SM-429N
Your washrooms will gleam brightly if you install the new Bennett paper towel dispensers. They are available in both chrome-plated and baked-white-enamel finishes. The single-fold, junior paper towel dispensers have beautifully curved doors with full-length piano-type hinges. Lock and key eliminate tampering. Side slots permit checking the towel supply at a glance. Paper is automatically fed by gravity through the bottom slot at the proper angle to eliminate binding, cross-feeding, and inaccessibility of towels. The line also includes double-fold general purpose paper towel dispensers. . . . Use the Inquiry Card or write to Bennett Manufacturing Company, Dept. SM-429N, Alden, New York.

School Bus SM-418N
School children will get to their destinations safely in the Brill "Integral" school bus. The "Integral" design provides a strong tight body, good weight distribution, and a low center of gravity. Long life and low operating cost result from this construction.

Bus possesses adequate power and good brakes. Adjustable, platform driver's seat has plenty of room. Wide-entrance door is located completely within driver's range of vision. . . . Use the Inquiry Card or write to ACF-Brill Motors Company, Dept. SM-418N, Philadelphia, Pennsylvania.



School Bus Speaker Unit SM-417N
The school bus driver can have good control of the children he transports, both inside and outside the bus, when the new Safety Voice is used. By means of a loud-speaker inside the bus, the driver can give instructions and maintain order without diverting his attention from driving. A loud-speaker mounted on the outside of the bus permits him to direct children crossing busy streets while approaching or leaving the school bus.

This unit can be quickly installed and is inexpensive to own and operate. . . . Use the Inquiry Card or write to Stan C. Lindstrom & Company, Dept. SM-417N, 517 Dempster St. Evanston Illinois.

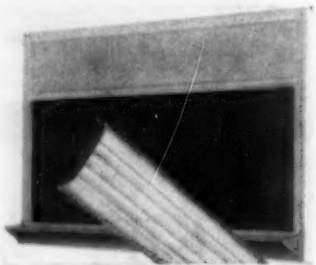
School Planning Board SM-412N
A new School Planning Board set helps visualize possible layouts of new school grounds, buildings, athletic fields, and parking spaces. The basic 20 x 45-inch board is composed of a white Vinylite-coated sheet of steel cemented to a plywood backing. Other boards may be added as needed.

Each board is ruled off to scale. Magnetized wooded blocks representing scale models of various buildings and magnetized green rubber sponge representing shrubbery and trees can be positioned and moved around on the board as desired. The board can be marked with special crayons and erased easily. . . .

Use the Inquiry Card or write to Chatfield-Clarke Company, Dept. SM-412N, 1639 Tenth St. Santa Monica, California.

Liquid Seal Remover SM-430N
Here's another maintenance problem licked. To remove old finishes, especially on floors or other surfaces where further sanding is not possible, try Wade seal remover. One easy application is usually effective. It covers evenly, evaporates slowly, penetrates deeply to raise several old coats of seal at a time. It can be used on vertical surfaces. This solvent is non-inflammable, nonexplosive, and will not damage grain or discolor the finest wood. . . . Use the Inquiry Card or write to Huntington Laboratories, Inc. Dept. SM-430N, Huntington, Indiana.

Photo Copy Ruler SM-413N
Users of any make photo copying machine may have free a sample bottle of Trucopyphote test solution which determines strength of fixer, plus a handy ruler which contains charts for suggested times for exposure, developing, fixing, and washing. The 12-inch flexible metal ruler also has a centimeter scale. When requesting sample and ruler, list name of photo copy machine now in use. . . . Use the Inquiry Card or write to General Photo Products Company, Dept. SM-413N, 15 Summit Ave. Chatham, New Jersey.

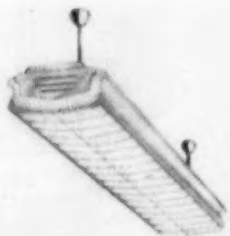


Chalkboard Moldings SM-421N
These smart, extruded aluminum chalkboard moldings will blend well with any type of interior trim. They are made for "snap-on" clips which permit the moldings to be installed without visible screw heads. The single-piece, extra-sturdy chalk trough has rounded edges that make dust removal extremely easy. Both moldings and chalk trough come in a soft satin aluminum finish, anodized to prevent fingerprints, discoloration, or tarnishing. This finish helps retain original luster for the life of the building in which moldings are installed. . . . Use the Inquiry Card or write to E. W. A. Rowles Company, Dept. SM-421N, Arlington Heights, Illinois.



School Traffic Light SM-404N
You can slow traffic and make school crossings safer by using the Ravenswood Gard-Lite. This extendible flashing amber light can be wheeled into place when needed, and removed to allow traffic to resume normal speed. It is easy and economical to operate. Power is by battery, and there is a socket for trickle charger. . . . Use the Inquiry Card or write to Streeter-Amet Company, Dept. SM-404N, 4101 Ravenswood Ave. Chicago, Illinois.

Fire-Resistant Fabric SM-431N
Safety and beauty are found in a new fire-resistant drapery material woven of Fiberglas and wool yarns. It meets rigid fire-safety requirements for use in institutions and places of public assembly. The fabric, an adaptation of a handloomed design by a famous weaver, has a tweed-like texture which drapes softly. Sunlight, mildew, and changes in temperature and humidity do not affect it. Since dust tends to remain on its surface, this long-wearing material responds to surface cleaning and requires dry cleaning only at long intervals. . . . Use the Inquiry Card or write to Knoll Associates, Dept. SM-431N, 601 Madison Ave. New York 22, New York.



Lighting Fixture SM-432N
Children's eyesight can be protected with the Garco Visualizer. It builds up high (Turn to page 30)

For more facts use Inquiry Card. SM-35N

THEATRICAL FABRICS by DAZIAN'S INC.

THE WORLD'S OLDEST AND LARGEST THEATRICAL FABRIC ORGANIZATION • ESTABLISHED 1842

FOR STAGE DRAPERIES
COSTUMES, CURTAINS
AUDITORIUM DECORATION

FOR INFORMATION OR SAMPLES WRITE OUR OFFICE NEAREST YOU:
NEW YORK: 142 West 44th Street
CHICAGO: 125 No. Wabash Avenue
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LOS ANGELES: 731 So. Hope Street

WRITE FOR FREE
BOOKLET "WHAT
FABRICS CAN DO
FOR YOUR SHOW"

For more facts use inquiry card. SM-36N

NO FINER LIQUID SOAPS!

... FOR THE MONEY YOU HAVE TO SPEND

BALMA THE PREMIUM SOAP

DOLGE is proud of its reputation for producing the very highest quality liquid soaps, and invites comparison on any basis — clarity, brilliance, pleasant aroma, rich lather. In addition, DOLGE soaps are non-irritating, will not turn cloudy or develop rancid odors even upon prolonged storage.

VELVA MEDIUM-PRICED

Whether you select BALMA (comparable to the most expensively perfumed cake soaps), modestly-priced VELVA or low-cost KLEENWELL, you'll receive TIP-TOP VALUE PER DOLLAR SPENT!

KLEENWELL

LOW-PRICED

Dispensers available in several types

Write for literature—have your DOLGE Service Men demonstrate these outstanding liquid soaps.

The C. B. DOLGE Co.
WESTPORT, CONNECTICUT

For more facts use inquiry card. SM-37N

CONTINENTAL FENCE

THE ONLY FENCE

Here's the only fence made of KONIK steel. No other fence gives you property protection at such low cost per year of fence life. For greater strength . . . extra elasticity . . . "clear through" rust resistance, get Continental Chain Link. Mail coupon below for more information about this better fence. Write Continental at Kokomo, Indiana.

*Trade Mark Reg. U.S. Pat. Off.

CONTINENTAL STEEL CORPORATION
Dubuque, Indiana

Please send FREE copy of "Fenced Protection"—a 6-page manual on property protection.

Name _____
Address _____
City _____ State _____

CONTINENTAL STEEL CORPORATION

CHECK THESE ITEMS FOR FURTHER INFORMATION

All products described in the editorial and advertising columns of the June issue of **SCHOOL MANAGEMENT** are listed on this

page. Check and return this form or use the Inquiry Card for further information. There's no charge and no obligation for this service.

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SM-538 School Buses (International Harvester Co.)

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SM-206R High-School Driver Education: Policies and Recommendations (NEA)
SM-207R UNESCO Year (Department of State)

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SM-320R Kingbird, Academic Flycatcher, Wood Pewee (Reidkamp)

SM-321R Phoebe, Crested Flycatcher (Reidkamp)
SM-322R Prairie Wrened Lark, Purple Martin, Barn Swallow (Reidkamp)

SM-323R Northern Cliff Swallow (Reidkamp)
SM-324R Tufted Titmouse, Black-capped Chickadee, White-breasted Nuthatch (Reidkamp)

SM-325R Green Woodward (Teaching Film Confessions)
SM-326R Drama Along the Unhook (Teaching Film Confessions)

SM-327R Winning Our Independence (Teaching Film Confessions)
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SM-331R How to Find the Answer (Curran)

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SM-3300R Let's Look at the Atom (Society for Visual Education)

SM-331R Atom at Work (Society for Visual Education)
SM-360R How We Get Our Gas (gas company)
SM-361R Facts about Floor Care (S. C. Johnson)

SM-362R People—Our Most Valuable Resource (Popular Science)
SM-353R Saving the Soil (Popular Science)

SM-354R Using Our Forests Wisely (Popular Science)
SM-355R Bathing Can Live Without Water (Popular Science)

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SM-32R Tablets & Models (International Bronze Tablet Co.)
SM-33R Art Equipment (W. Grunbacher)

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SM-376R 100 Selected 16mm. Films of the United States Government (United World Films)

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SM-378R Films from Britain 1949-1950 (British Information Services)

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SM-450R Station picture projector (De Vry)

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SM-420R Book covers (Cold)

SM-421R Travel Dispenser (Boswell)
SM-418R Bus (AGV-Breit)
SM-417R Bus speaker (Stan C. Lindstrom)

SM-412A Planning board (Challice-Clarke)
SM-430R Seal remover (Washington Laboratories)
SM-413R Photo story ruler (General Photo)

SM-421A Chalkboard erasing (E. W. & A. Rowin)
SM-404R Traffic light (Stratford-Amet)
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SM-422R Fluorescent lamp (Westinghouse)

SM-420R Pests (Poison Products)
SM-434R Power saw (Forestry)
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SM-40R Insular glass blocks (American Structural Products Co.)
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SM-414R Desk (Kellogg-Gibson)

SM-416R Vacuum (Royal Vacuum)
SM-41R Floor maintenance (American Floor Surfacing Machine Co.)

SM-42R Liquid soap (The C. B. Dolge Co.)
SM-43R Publishers (Penguin) Magazine, Inc. (U.S.)

SM-409R Storage bins (General Steel Products)
SM-400R Fire extinguisher (Randolph Laboratories)

SM-420R Dew burners (Detroit Steel Products)
SM-424R Glass block (American Structural Products)

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SM-44R Electric range (National Electrical Manufacturers Assn.)
SM-415R Globe (A. J. Wyman)

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SM-48R Publishers (Penguin) Magazine, Inc. (U.S.)

SM-49R Owners (James Cunningham Son & Co.)
SM-50R Remodeling, door & desk signs (Hall Sign Co.)

SM-405R Bus safety comics (Superior Coach)
SM-486R Waste management (Household Plastics)

SM-487R Photographs (British Information Services)
SM-457R Aluminum wares (Harlow C. Stahl)

SM-461R Lighting fixtures (Rudy-Phillips)
SM-466R Plumbing fixtures (J. A. Zure)

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SM-51R Sound system (Radio Corporation of America)
SM-477R Roof maintenance (United Laboratories)

SM-465R Brightness control (Tremco)
SM-463R Laboratory equipment (Hamilton)
SM-460R Unit ventilators (John A. Nesbitt)

SM-464R Glass-reducing glass (Westinghouse Glass)
SM-470R Floor machine (American Floor Surfacing Machine)

SM-468R Recreational lighting (Union World)
SM-462R Microscopes (Ramsell & Lomb)

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SM-52R Lighting fixtures—Projector (National Carbon Co.)

Mail to Readers' Service Bureau, School Management, 88 Vanderbilt Ave., New York 17, N. Y.

Please send me information on the items I have checked above

Other product information wanted:

BE SURE TO SIGN YOUR NAME
Please write plainly

NAME _____ POSITION _____

SCHOOL SYSTEM _____

STREET ADDRESS _____

CITY _____ STATE _____

SCHOOL SUPPLIES AND EQUIPMENT

(Continued from page 28)

Use the SCHOOL MANAGEMENT coupon on page 29 of the Inquiry Card. Indicate key number of item on which you wish to receive further information.

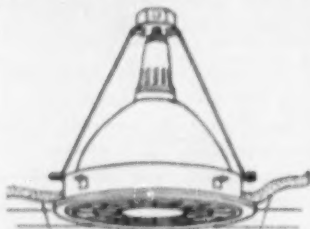
lighting levels without producing objectionable contrasts or distracting glare. This fluorescent fixture offers 45 percent shielding both lengthwise and crosswise, and 77 percent light utilization. A 50-50 light distribution produces widespread light on ceiling and eliminates objectionable contrast from this source.

The unit comes in several sizes. It may be hung independently or coupled in continuous runs. Cleaning is easy, since the large louver cells are reached from the floor with a long-handled brush or vacuum. . . Use the Inquiry Card or write to Garden City Plating & Manufacturing Company, Dept. SM-432N, 1750 N. Ashland Ave. Chicago 22, Illinois.

Folding Table and Bench SM-433N
New rubber casters that will not leave black streaks on floors have been added



to Schieber In-wall folding tables and benches for multi-purpose rooms. Heretofore there has been a tendency for wheels to mark light floors until the surface of the wheel was worn off slightly. The new casters are of the same dimensions and offer the same long life as those formerly used. They have oilless bronze lifetime bushings. . . Use the Inquiry Card or write to Schieber Manufacturing Company, Dept. SM-433N, 12720 Burt Road, Detroit 23, Michigan.



Gymnasium Lights SM-401N

If you're building a new gymnasium or improving the lighting in an old one, the new line of Alzak aluminum high bay gym lights will be of interest to you. It includes both exposed and recessed types, designed to provide for easy maintenance and changing of lamps. The lights are protected with heavy-gauge wire guards, and may be used with or without concentric louvers for shielding. Reflectors are engineered for a 60-degree beam. . . Use the Inquiry Card or write to Edwin F. Guth Company, Dept. SM-401N, 2615 Washington Avenue, St. Louis 3, Missouri.

Fluorescent Lamp SM-422N

A new 90-watt fluorescent lamp can bring 6 percent more light into schools without noticeably increasing the electric bill. This tube contains equal amounts of krypton and argon gases. It generates more light, starts easier, and operates better than the company's 85-watt, all-krypton lamp. It will operate in either

the 85-watt or the old 100-watt equipment. Average life span of the lamp is 7,500 hours, or almost four years of burning on a 40-hour week schedule. . . Use the Inquiry Card or write to Westinghouse Electric Corporation, Dept. SM-422N, 306 Fourth Ave. Pittsburgh 30, Pennsylvania.

Lay-flat Paste SM-419N

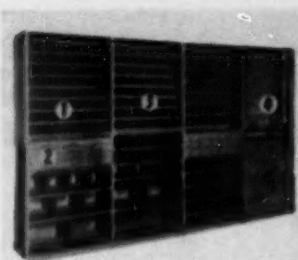
Handy for a multitude of school uses is Flexiflat, a new paste for mounting pictures, photographs, scrapbooks, art layouts, and handicraft work without warping or wrinkling. The plasticized formula permits no pulling action on the paper. It holds materials firmly and permanently. Paste can be diluted with water; brushes clean readily. . . Use the Inquiry Card or write to Paisley Products, Inc. Dept. SM-419N, 1770 Canalport Ave. Chicago 16, Illinois.

Portable Power Saw SM-434N

Maintenance men and those doing carpentry or electrical work will find the 7-in-1 Whiz-Saw an ideal tool. It can be used as a rip, crosscut, scroll, keyhole, or coping saw. When attached to an auxiliary Whiz-Saw table it can take the place of a band or jig saw. It can make an inside cut without first boring a starting blade hole. This safe, 3 1/2-pound tool is designed to cut wood, bone, plastic, fibreboard, hard rubber, and other composition materials up to 1 inch in thickness. . . Use the Inquiry Card or write to the Forsberg Manufacturing Company, Dept. SM-434N, 125 Seaview Ave. Bridgeport 1, Conn.

Classroom Paint Brushes SM-406N

Colorfulness is not the most important feature of the new Paint Rite plastic ferruled, plastic handled brushes. For the eye-catching plastic is noncorrosive and non-rusting. The brush portion is made of high-grade camel hair, with long-lasting secure bristles. . . Use the Inquiry Card or write to Montrose Products, Dept. SM-406N, 6257 North Clark St. Chicago, Illinois.



Storage Equipment SM-408N

A convenient new tool rack contains such typical storage units as: (1) a sloping front unit which provides 88 openings in 8 depths with shelf dividers adjustable every inch; (2) a drawer case unit, each drawer having 5 dividers; (3) a sloping shelf unit with 108 compartments on 8 shelves; and (4) a large swinging panel unit with holes punched every inch. . . Use the Inquiry Card or write to Lyon Metal Products, Incorporated, Dept. SM-408N, Aurora, Illinois.

Liquid Hand Soap SM-407N

You don't need to have green deposits on the metal of soap dispensers or in copper soap lines. The new Whiz "Purr" contains a special inhibitor which makes it noncorrosive to copper or tin. This slightly-scented coconut oil liquid hand soap has a small amount of tempering oils to eliminate the natural sting of coconut oil. It is economical for use in hard water areas. The soap is available in both concentrated and ready-to-use solutions. . . Use the Inquiry Card or write to R. M. Hollingshead Corp. Dept. SM-407N, 840 Cooper St. Camden 2, New Jersey.

New Wet-Mop Yarn SM-405N

It soaks up water faster than a blotter and takes the dirt along with it, claims the maker of the new Dura-Sorb mop yarn. Since it mops fast and lasts long, labor and mop-head costs can be reduced with its use. It is excellent on both smooth and rough floors. When it has been cleaned by wringing or rinsing under running water,



it dries fast, soft, and in sanitary condition. Dura-Sorb mops come in a variety of sizes to fit any standard mop holder. Sample strands are available. . . Use the Inquiry Card or write to American Standard Manufacturing Company, Dept. SM-405N, 2510 South Green St. Chicago 8, Illinois.

OVER 80 floor finishing products are on an approved list recently published by the Maple Flooring Manufacturers Association. They have passed MFMA official laboratory tests in accordance with a revised formula and are especially effective on floors of northern hard maple, beech, and birch. The new list is divided into two parts:

1. Penetrating sealer finishes for use on hardwood floors subjected to heavy-duty traffic conditions. They are recommended for gymnasium-auditoriums and multi-purpose rooms where floors are used for games, dances, exhibits, community meetings, and other activities. Use for classrooms and offices is also suggested.

2. The Bakelite-type of finish developed for gymnasiums and used exclusively for sports activities where the general public is not admitted.

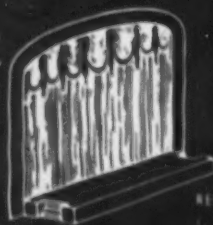
For more facts use Inquiry Card. SM-38N

For more facts use Inquiry Card. SM-39N

Complete STAGE EQUIPMENT

- Proscenium
- Lighting equipment
- Stage hardware
- Curtains
- Frontline draperies
- Scenery
- Scenery curtains
- Stage rigging
- Stage furniture
- Floor mats
- Musical equipment
- Musical rigging

20 years of experience manufacturing, installing, and servicing stage equipment for churches, schools, and institutional auditoriums.



Planning? Intend buying? Art-Craft will be glad to acknowledge your inquiries promptly.

REQUIREMENTS FOR QUOTATIONS

1. Width and height of proscenium
2. Height from stage floor to ceiling
3. Depth of stage
4. Width of stage

Upon receipt of measurements, samples and price will be mailed upon request. For descriptive literature, specify on order. No. 102

ART CRAFT

THEATRE EQUIPMENT CO.

108 WEST 46th STREET NEW YORK 19, N. Y.

For trouble-free locker control...

New DUDLEY Master-Keyed P-570

The finest master-keyed padlock you can buy. Extra strong 5/16" shackle, 64,000 possible combinations. Sturdy 3-tumbler mechanism in satin finish, cast aluminum case. Two-year guarantee.

Dudley Master Key can't be duplicated on commercial, key cutting machines.



Master-Charted Stainless steel RD-2

Hundreds of school installations testify to the way RD-2 stands up under student abuse. Guaranteed for two years.

Write for free Catalog Folder that also shows built-in, master-keyed S-540.

DUDLEY LOCK CORPORATION

370 West Monroe St., Dept. 611, Chicago 6, Ill.



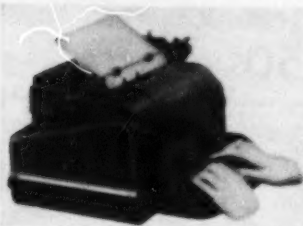
SCHOOL SUPPLIES AND EQUIPMENT

Use the SCHOOL MANAGEMENT coupon on page 29 or the Inquiry Card. Indicate key number of item on which you wish to receive further information.



Electric Typewriter SM-427N

Keys with injection molded characters that will not wear off, black plastic operating levers and platen knob that resist marking and staining are part of the Electric-conomy, Remington Rand's 1950 electric typewriter. Its many engineering improvements include provision for one-space tabulation, governor-controlled tab-key carriage return for wide tabulations, and faster space bar operation. Key resistance has been reduced almost 50 percent. . . . Use the Inquiry Card or write to Remington Rand, Inc. Dept. SM-427N, 315 Fourth Ave. New York 10, N. Y.



Electric Typewriter SM-425N

Keyboard controlled electric margins are featured in the 1950 Underwood deluxe electric typewriter. The operator can set the left and right margins without raising her hands. Internal cushioning, which consists of rubber insulation placed between the typewriter operating mechanism and the base, makes operation quieter than formerly. This floating, powered typing, adjustable to each operator's desires, helps isolate and reduce noise transmission and vibration. . . . Use the Inquiry Card or write to Underwood Corporation, Dept. SM-425N, 1 Park Ave. New York 16, N. Y.



Electric Typewriter SM-426N

Designed to allow the secretary to switch from a manually operated typewriter without a transition period is the new Royal electric typewriter. Its keyboard positions are identical with Royal's standard and portable typewriters. Its electrically controlled touch is adjustable to the individual's typing touch.

A good machine for instruction, uni-

form key lever dip develops maximum typing rhythm. Complete powering enables tabulation, shifting, back spacing, and underscoring electrically. . . . Use the Inquiry Card or write to Royal Typewriter Company, Inc. Dept. SM-426N, 2 Park Ave. New York 16, N. Y.

Storage Desk

SM-414N

To make the most of work space, try assembling a desk with a base tailored to individual needs. Sect-o-desk is a flexible,

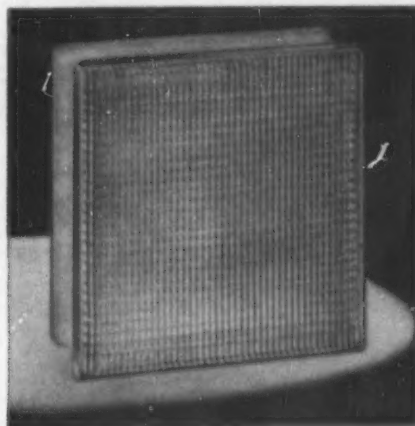
fire-resistant 3-piece unit that offers a choice of base cabinets—a two-drawer letter file or a three-compartment cabinet with lock for keeping books, stationery, or office supplies. The 50 x 24½-inch top fits snugly over the cabinets and is braced so they are held in place. Files can also be used alone or stacked one on top of the other. . . . Use the Inquiry Card or write to Kalmar-Golden, Inc. Dept. SM-414N, 45 West 36 St. New York 18, N. Y.

Heavy-Duty Vacuum

SM-416N

A sturdy cleaner good for heavy-duty work in schools is the Royal Commercial Model No. 130. It is light in weight, yet powerful and ruggedly constructed. For rapid cleaning it has a wide nozzle instantly adjustable to any thickness of floor covering. Double rear wheels give perfect balance. Motor bearings are of special bronze packed with grease when assembled to assure long life. . . . Use the Inquiry Card or write to Royal Vacuum

For more facts use Inquiry Card. SM-40N



"Light Direction with Azimuth Correction"

ANNOUNCING A NEW PRINCIPLE IN LIGHT CONTROL with Insulux Glass Block Number 363

Since 1941, Owens-Illinois has maintained a laboratory at the University of Michigan for the purpose of studying daylight transmission through glass block. Out of this laboratory has come a completely new type of light-directing glass block—Insulux Number 363. This new block is not only daylight-directing, but is also "azimuth-correcting" . . . For light control it provides: more uniform transmission of daylight, increased diffusion, and lower brightness. These advantages, we believe, are of particular importance to architects and others interested in illuminating school classrooms, as well as other areas where daylight is used for critical seeing . . . Mail the coupon below for full information.

INSULUX DIVISION

American Structural Products Company
Dept. G-187, P.O. Box 1035
Toledo 1, Ohio

Please send me more information on the new daylight-directing Insulux Glass Block Number 363.

Name _____

Address _____

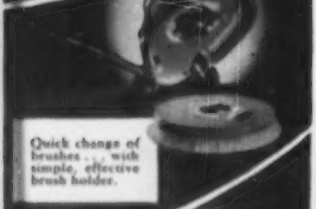
City _____ County _____ State _____

Cleaner Company, Dept. SM-416N, 540 East 105 St. Cleveland 8, Ohio.

Storage Bins SM-409N
Small machine parts and other shop items are easily accessible when stored in these heavy-gauge steel bins. Both shelves and dividers are adjustable to various dimensions. Bins come ready-made in sizes 36 x 18 x 85 inches high and 36 x 12 x 85 inches high. Other sizes can be ordered. . . . Use the Inquiry Card or write to

For more facts use Inquiry Card. SM-411N

Save Labor with this ALL-FLOOR AMERICAN Deluxe



New improved American Deluxe saves time... saves labor... increases life and luster of floors! Ideal for all floors—wood, rubber tile, asphalt tile, linoleum, terrazzo, concrete, all new compositions. Ample power... maintains full brush speed on any floor, 19", 16" and 14" sizes. Write for illustrated bulletin and prices.

The American Floor Surfacing Machine Co.
875 So. St. Clair St.
Toledo 3, Ohio.

Specify
AMERICAN
Deluxe Floor Maintenance
Machines

Check List of

SCHOOL SUPPLIES AND EQUIPMENT

(Continued from page 31)

Use the SCHOOL MANAGEMENT coupon on page 28 or the Inquiry Card. Indicate key number of item on which you wish to receive further information.

General Steel Products Corp., Dept. SM-409N, 131-35 Avery Ave., Flushing, N.Y.

Fire Extinguisher SM-400N

Only one hand is needed to operate the Randolph "6" extinguisher from the time it is removed from its bracket until the flames are extinguished. Utilizing a thumb-trigger release and self-aimed nozzle, this CO₂ extinguisher is panicproof. It contains 6 pounds of nontoxic, nondamaging carbon dioxide gas. Use it to smother

er flammable liquid and electrical fires. In tests it has extinguished a 16-square-foot gasoline fire in 7 1/4 seconds. Underwriters' Laboratories approves the product. . . . Use the Inquiry Card or write to Randolph Laboratories, Dept. SM-400N, 8 East Kinzie Street, Chicago 11, Illinois.

Door Hardware SM-420N

Tarnish and corrosion become a thing of the past with the hardware now used on the Fenestra hollow-metal entrance door. It comes with a recently perfected

lacquer finish said to be impervious to all known cleaning fluids as well as to the salts and acids of human perspiration. Baked on to a bright, high luster, the lacquer cannot be dissolved by any standard paint remover or lacquer thinner. It is resistant also to bumps, scratches, and abrasion. . . . Use the Inquiry Card or write to Detroit Steel Products Company, Dept. SM-420N, 3303 Griffin St. Detroit 11, Michigan.

Glass Block SM-424N

The new Insulux light-directing, "azimuth correcting" glass block, No. 363, accepts more daylight under unfavorable conditions than formerly. This increases the amount of natural light transmitted into rooms in the early morning and late afternoon. The new block diffuses daylight more uniformly to all portions of the room, including boards on front and rear walls. It directs a major portion of available daylight toward the ceiling where it is then reflected downward. A companion block, No. 365, is made for below eye-level use. . . . Use the Inquiry

For more facts use Inquiry Card. SM-42N

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The C. B. DOLGE CO.
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Card or write to American Structural Products Company, Dept. SM-424N, Ohio Bldg. Toledo 1, Ohio.

Pen Cleaner SM-411N

Dried waterproof drawing ink can speedily be removed from pens, brushes, and instruments with this new pen cleaner. Articles cleaned with it come out clean as new, and broken in. It is nonflammable and is harmless to instruments, brushes, hands, and clothing. This clean-

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SCHOOL SUPPLIES AND EQUIPMENT

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er is designed for use on nonabsorbent surfaces. . . Use the Inquiry Card or write to Higgins Ink Company, Inc., Dept. SM-411N, 271 Ninth St. Brooklyn 15, N. Y.



New Globe SM-415N
This handsome 32-inch globe will excite geographical interest by its very size, which makes it easy to find desired locations on it. It is made from new plates with up-to-date political portrayal. Scale is 250 miles to the inch.

The globe ball is made of spun aluminum. Stand is of dark mahogany with brass meridian and trimmings. . . Use the Inquiry Card or write to A. J. Nystrom & Company, Dept. SM-415N, 3333 Elston Ave. Chicago 18, Illinois.



Plastic Relief Map SM-423N
A vivid, three-dimensional perspective of the country can be obtained from this new, 11-color Vinylite plastic relief map of the United States. Large enough to be seen from the back of the classroom, the portable, 64 x 40-inch map weighs only 2 1/4 pounds. Scale is one inch to 50 miles. The vertical exaggeration is 20 to 1.

Map is molded in a strong, waterproof, tear-resistant, rigid plastic sheet with high dimensional stability. Classroom dust and grime can be removed with a damp cloth. Durable plastic frame is designed so it can be hung from nails. Cost is far less than many conventional plaster relief maps. . . Use the Inquiry Card or write to Aero Service Corporation, Dept. SM-423N, 236 East Courtland Street, Philadelphia 20, Pennsylvania.

Test Scorer SM-403N
The Self-Scorer is used as an answer sheet for objective-type quizzes. It gives the student immediate knowledge of right and wrong answers, and can be graded by him as soon as the test is completed. The examiner has only to arrange test items to fit one of the different types of answer sheets.

Using the Self-Scorer in objective tests, the student punches holes which are numbered to correspond with answer-choices on the examination sheet. If a red dot appears in the hole the student knows his choice is correct. A wrong choice remains blank. The student punches until the right answer is obtained for every problem. . . Use the Inquiry Card or write to Science Research Associates, Dept. SM-403N, 228 S. Wabash Ave. Chicago 4, Illinois.

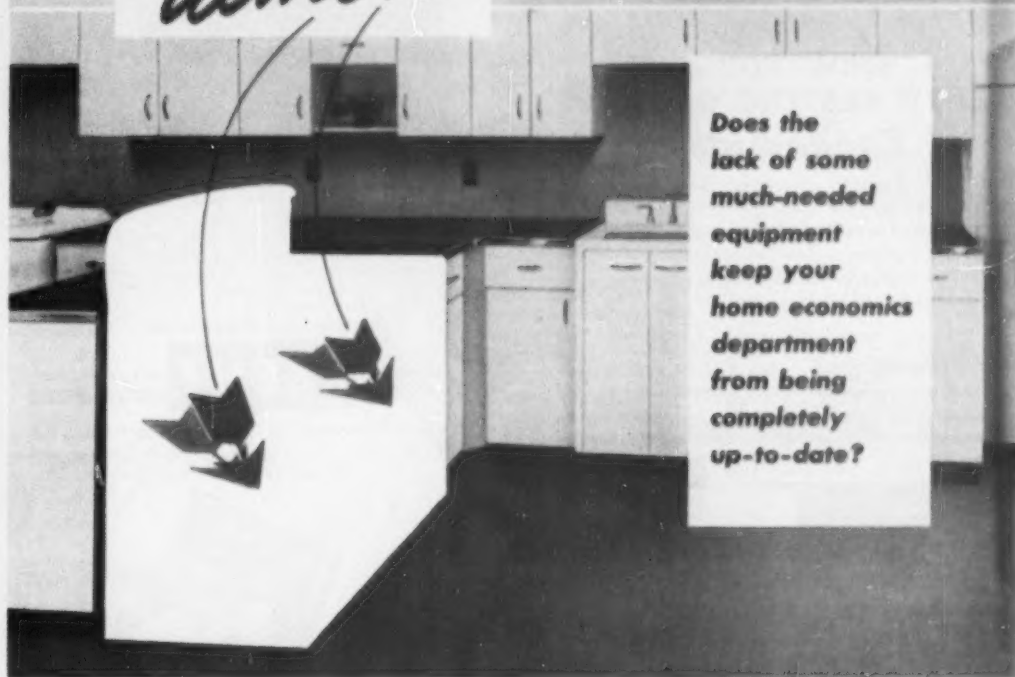
Elementary Science Kit SM-401N
You can vitalize science teaching, and make it easier, by utilizing the Science Kit developed for use with elementary school pupils. With it fascinating experiments can be performed in such fields as heat, water, air, light, sound, magnetism, electricity, machines, rocks and minerals, the earth and the solar system, food, plants. It contains over 70 pieces of top quality laboratory apparatus. The 22-pound kit can easily be moved from

room to room as needed. . . Use the Inquiry Card or write to Science Kit, Dept. SM-401N, 204 Dexter St. Tonawanda, New York.

THE Staff Reporter issued by the Board of Education, Wilmington, Delaware, publishes an interesting column called "Opinion Please!" A question is submitted to two outstanding educators and their opinions reported. (Turn page for additional departments)

For more facts use Inquiry Card. SM-44N

WHAT MAKES A SCHOOL almost modern?



Does the lack of some much-needed equipment keep your home economics department from being completely up-to-date?

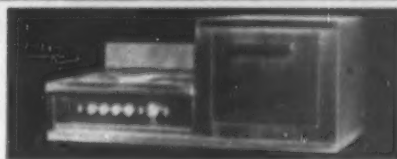
Most school officials today recognize the fact that the automatic Electric Range plays an increasingly important part in the American home. Surveys show that most schools with modern home economics departments give attention to the teaching of Electric Cooking. They know that students from homes having modern Electric Ranges want to learn their proper use. And it follows naturally that to teach them properly, the Electric Ranges in your school's home economics laboratory must be of the most modern type, equipped with the best features now available. Old, outdated ranges or makeshift substitutes will not suffice.

You want your school right on top, so equip it to teach modern Electric Cooking! Talk with your local electric service company or electric appliance dealer for full information.

Electric Range Section

National Electrical Manufacturers Association
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Please send me, absolutely FREE, copy of "THE MODERN HOME ECONOMICS DEPARTMENT"—home economics laboratory floor plan booklet.

Name.....

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TEACHING MATERIALS

Use the SCHOOL MANAGEMENT CONJON on page 29 or the Inquiry Card. Indicate key number of item on which you wish to receive further information.

Bus Safety Comics SM-485N
"School Bus Safety Tips." Poster, 14 1/2 x 21 1/2 inches; booklet, 5 x 3 inches. Free.
Joe Palooka is now teaching youngsters school bus rules and their importance. A full-color Joe Palooka poster in comic-strip style is available for bulletin board use. The same message is available

for pupils in simply-laid-out, comic, pocket-size booklets. . . . Use the Inquiry Card or write to Superior Coach Corporation, Dept. SM-485N, Lima, Ohio.

Money Management SM-486N
"Money Management, Your Shopping Dollar." 32 pages. 5¢.

Useful for homemaking and family relationships courses are the facts and practical tips contained in this guide for shoppers.

The how, when, and where of buying in terms of your own situation, labels, testing programs, and regulations are some of the subjects discussed. . . . Use the Inquiry Card or write to Household Finance Corporation-Dept. SM-486N, 919 North Michigan Ave. Chicago 11, Illinois.

Photographs SM-487N
"Subject List of Photographs." 4 pages. Free.

This publication lists many of the monochrome photographs available free for a loan period of two weeks. They are divided into general categories of The United Kingdom, British Colonies and Protectorates, Personalities, and World War II. There is a charge for color photographs. . . . Use the Inquiry Card or write to British Information Services, Dept. SM-487N, 30 Rockefeller Plaza, New York 20, N. Y.

For more facts use Inquiry Card. SM-488N



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Here are three publications that will be in constant demand in your school library.

◆ **SENIOR PROM** (formerly Calling All Girls) is the favorite magazine for teen age girls. Its lively, helpful contents provide excellent supplementary material for home economics, guidance, and English classes.

◆ **VARSITY**, The Young Men's Magazine is the only publication that is directed to all the lively interests of young men of high school and early college age.

◆ **PARENTS' MAGAZINE** is an indispensable reference for home economics and parent education classes.

For sample copies and SPECIAL SCHOOL RATES write to Educational Division, The Parents' Institute, Inc. 52 Vanderbilt Ave., New York 17, N. Y.

MANUFACTURERS' LITERATURE

Use the SCHOOL MANAGEMENT CONJON on page 29 or the Inquiry Card. Indicate key number of item on which you wish to receive further information.

Aluminum Ware SM-467N
"Commercial Aluminum Cookware Catalog 50" presents a line of ware with an easily cleaned satin surface, produced from hard aluminum that guarantees long service under severe usage. Included are bain maries, bun warmer, dish pans, double boilers, stock pots, and many other utensils. Attractive catalog is free to cafeteria managers and superintendents, 20¢ to others. . . . Use the Inquiry Card or write to Harlow C. Stahl Company-Dept. SM-467N, 1375 East Jefferson Ave. Detroit 7, Michigan.

Lighting Fixtures SM-461N
In addition to describing the Plidite line of regular slimline and fluorescent fixtures, this catalog features three school combination models which give highly efficient light and at the same time make it possible to distribute health-giving ultraviolet rays over entire room areas. . . . Use the Inquiry Card or write to Ruby-Plidite Corporation, Dept. SM-461N, 32-02 Queens Blvd. Long Island City 1, N. Y.

Plumbing Fixtures SM-466N
"Reference Handbook and Catalog No. 50" presents the complete line of Zurn engineered carriers for all wall-type lavatories, urinals, water closets, service sinks, and similar fixtures. It tells when and how to install them and includes such information as how to relieve wall construction of all burden and strain, how to obtain true alignment of all fixtures in multiple installations, and how to reduce installation time costs. . . . Use the Inquiry Card or write to J. A. Zurn Manufacturing Company, Dept. SM-466N, Erie, Pennsylvania.

For more facts use Inquiry Card. SM-48N

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Roof Maintenance SM-477N
Folder entitled "Protect that Roof. . . It's Good Insurance" describes the causes for roof troubles and explains tested means of combating havoc caused by roof structure movement, sun, wind, rain, and snow. Gives method for eliminating frequent difficulties found in flashings, laps, seams, and coping stones. . . Use the Inquiry Card or write to United Laboratories, Inc. Dept. SM-477N, 16801 Euclid Ave. Cleveland 12, Ohio.

Brightness Control SM-465N
Profusely illustrated booklet entitled "Your Next Paint Job" contains a complete discussion of the latest methods of interior and exterior painting and considers at length the problem of Contrast Control and ways of achieving it. Drawings show how schools can benefit from control of the brightness pattern. . . Use the Inquiry Card or write to Tremco Manufacturing Company, Dept. SM-465N, 8701 Kinsman Rd. Cleveland 4, Ohio.

Laboratory Equipment SM-463N
The handsome "Hamilton Laboratory Equipment for Educational Institutions," Catalog 211-R, is a comprehensive presentation of all types of equipment for outfitting or modernizing science laboratories. The many photographs of recent installations will be of assistance to administrators. . . Use the Inquiry Card or write to Hamilton Manufacturing Company, Dept. SM-463N, Two Rivers, Wisconsin.

Unit Ventilators SM-468N
Detailed, well-illustrated booklet titled "Nesbitt—The Unit Ventilator that Sets a New Standard of Classroom Comfort" explains how the Nesbitt Series 500 Syncretizer meets these requirements for modern schoolroom comfort: quick, economic heating; heat plus ventilation; cooling with freedom from drafts; control and balance of all the heating and ventilating factors; and a means of adjusting the minimum temperature of air introduced to the room in relation to outdoor temperature. . . Use the Inquiry Card or write to John J. Nesbitt, Inc. Dept. SM-468N, Holmesburg, Philadelphia 36, Pennsylvania.

New Research Center Tests Glass Block Use

An experimental classroom building which will serve as both a research and demonstration center was recently completed at Port Allegany, Pennsylvania, by the Pittsburgh Corning Corporation. Architects and school administrators who wish to investigate new design ideas are welcome to visit.

Planned in accordance with the newest schoolhouse construction practices, the Daylighting Research Center serves as an experimental station for the testing of glass block fenestration performance and the general development of the co-ordinated classroom. Special light-directing glass blocks are installed in various locations according to the job they are supposed to perform. Comparison tests are easily made since certain blocks can be quickly removed by masons. At the present time various inexpensive ways of providing brightness control at the vision strip are being studied. Soon the center will investigate the relationship between classroom illumination and visual aids projection.

Glare-reducing Glass SM-464N
New catalog on heat absorbing and glare-reducing Coolite glass discusses properties of the glass, gives specifications, and shows typical school installations. . . Use the Inquiry Card or write to Mississippi Glass Company, Dept. SM-464N, 88 Angelica St. St. Louis 7, Missouri.

Floor Machine SM-470N
A lively circular titled "American Deluxe Floor Maintenance Machines" illustrates

many of the new features of these machines designed for dry or wet cleaning and maintenance operations on a variety of floors. . . Use the Inquiry Card or write to American Floor Refining Machine Co. Dept. SM-470N, Toledo, Ohio.

Recreational Lighting SM-460N
"Union Metal Bulletin FL-102" gives comprehensive information on tapered steel poles and mountings for lighting outdoor sports activities of every descrip-

tion. . . Use the Inquiry Card or write to Union Metal Manufacturing Company, Dept. SM-460N, Canton 5, Ohio.

Microscopes SM-462N
The inexpensive, new-model FL student microscope is well-described and has a life-like illustration in "Baush & Lomb Laboratory Microscopes," Catalog D-185. . . Use the Inquiry Card or write to Baush & Lomb Optical Company, Dept. SM-462N, Rochester 2, New York.

For more facts use Inquiry Card. SM-31N



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HERE is a really outstanding, versatile school sound system designed to provide the utmost in utility at the lowest cost.

This RCA Dual Channel Sound System incorporates the latest technical developments in sound distribution engineering. One channel may be used for the distribution of teaching programs or announcements to selected classrooms, while the second channel simultaneously permits the distribution of an additional program to other classrooms or areas in the school or grounds. The second channel may be used for inter-communication purposes by the simple flick of a switch.

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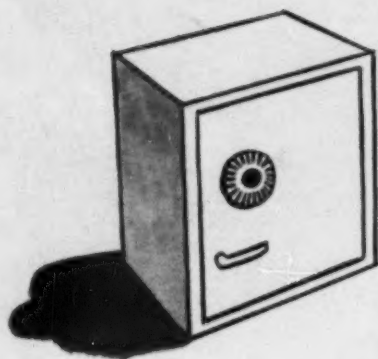
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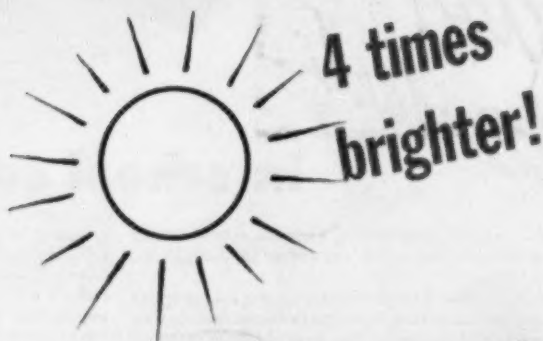
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Furthermore, you will get projection light which is four times brighter than the next best source. You can seat 100 to 1000 people without sacrificing visibility. You get rich, vivid detail in your color movies. And the actual cost of the carbons is only $\frac{1}{3}$ the cost of the next best competitive source.

For complete details on the carbon arc for 16 mm equipment, write to National Carbon Division, Dept. S.

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